



# NINETEENTH BIENNIAL REPORT

OF THE

## BOARD OF DIRECTORS

OF THE

# Agricultural and Mechanical College of Texas

FOR THE FISCAL YEARS ENDING AUGUST 31, 1913  
AND AUGUST 31, 1914



Containing Reports of the Directors, President of the College, Director of Extension, Director of Experiment Stations,  
Financial Statement and College Budget.



A. C. Baldwin & Sons  
State Printers  
Austin.



# NINETEENTH BIENNIAL REPORT

OF THE

## BOARD OF DIRECTORS

OF THE

UNIVERSITY OF ILLINOIS LIBRARY

OCT 12 1915

# Agricultural and Mechanical College of Texas

FOR THE FISCAL YEARS ENDING AUGUST 31, 1913  
AND AUGUST 31, 1914



Containing Reports of the Directors, President of the College, Director of Extension, Director of Experiment Stations, Financial Statement and College Budget.



A. C. Baldwin & Sons  
State Printers  
Austin.



## REPORT OF THE PRESIDENT OF THE BOARD OF DIRECTORS

---

College Station, Texas, December 17, 1914.

*To His Excellency, Hon. O. B. Colquitt, Governor of Texas.*

SIR: In compliance with the law, we submit the following report of the Agricultural and Mechanical College of Texas for the biennium ending August 31, 1914. The progress of the institution during that period and its needs are set forth in detail in the report of President W. B. Bizzell, which is herewith transmitted and made a part of the report of the directors.

It affords us great satisfaction to state that the college is in good condition. The standard of scholarship is steadily improving, the health of the student body has been good, and harmonious relations exist in all the phases of life at the college.

The new mess hall was ready for use on the opening day of the session 1913-14, and in June, 1914, the new Academic Building was occupied. These buildings are splendid structures, well adapted to their uses, and they have added greatly to the value of the plant.

While for several years the authorities of the college have realized their obligations to be of service not only to the students resident at the college, but to the people of the State at large as well. Their activities in the latter direction have been restricted by the lack of funds for doing extension work on a large scale. The enactment by Congress of the Smith-Lever bill presents an opportunity for greatly expanding this work. As you will recall, the Legislature not being in session when this bill became effective, you accepted, on behalf of the State, the provisions of this bill, thereby entitling the State to receive the first annual appropriation of ten thousand dollars from the Federal Government. To secure this permanently, it will be necessary for the Legislature to give its assent also to the provisions of the bill in question. And in order that the amounts appropriated by the Federal Government in excess of ten thousand dollars a year may be secured to the State, it will be necessary for the State to duplicate these additional sums. It can scarcely be doubted that the State will take advantage of this opportunity to "match dollars" with the Federal Government in a work whose importance it is impossible to exaggerate.

The college has entered into an agreement with the United States Department of Agriculture under which all the work done by the department in Texas will be done in co-operation with the college. This agreement and the provisions of the Smith-Lever bill open up vast possibilities for service to the people. It is hoped that full advantage will be taken of the opportunity.

It is gratifying to us to report that the financial affairs of the college are in good shape, and that there is no deficiency. The fiscal



department has been reorganized, and is in a thoroughly satisfactory condition.

We are obliged again to bring to your attention the fact that, under a former administration, the endowment fund of the college was re-invested in securities bearing interest at the rate of 3 per cent, whereas the act of Congress under which the college was established specifically prescribes that that fund shall be invested in securities bearing interest at a rate of not less than 5 per cent. By its acceptance of the provisions of the act of Congress referred to, the State committed itself to the provisions of that act. As stated in our last biennial report, the commissioner of the Federal Department of Education has given notice that the State must reinvest the endowment fund in securities bearing interest at a rate not less than 5 per cent and account for the loss of interest resulting from the improper investment. A detailed statement of the amount involved will be presented at the proper time.

In June, 1913, Colonel R. T. Milner tendered his resignation as president of the college. After mature deliberation extending through more than a year the board elected as his successor Dr. W. B. Bizzell, then president of the College of Industrial Arts at Denton. The eminent success of his administration at Denton, and the result he has already accomplished at the Agricultural and Mechanical College gives us the confident assurance that the Board acted wisely, and that in his hands the interests of the college are safe. On his statement of the needs of the college, and on our own careful investigation, we submit the accompanying budget for the two years, beginning September 1, 1915. We have had in mind the existing financial depression and have eliminated every item for which there is not urgent need. We believe that appropriations made to an institution such as this should be regarded not as an expense, but as an investment which will be returned to the State many times over in the advancement of its material interests.

We desire to emphasize the need of appropriations for the following purposes: A modern hospital, concrete walks, an assembly hall, an agricultural building, a veterinary service building, an animal husbandry building, a mechanical engineering building, an hydraulic laboratory. We renew the recommendation that there be established at the college a school of veterinary medicine. For reasons stated in our last report, we believe that this undertaking should not be deferred longer.

We transmit also the reports of the Director of Extension Service and of the Director of the Experiment Station, calling your attention to the fact that the main experiment station, located at the college, has never received an appropriation at the hands of the State.

Accompanying our report will be found a financial statement covering receipts and expenditures for the past two years. We bespeak your co-operation in presenting to the Legislature the needs of the great institution which we represent.

Very respectfully submitted,

E. B. CUSHING,  
President Board of Directors.

# REPORT OF THE PRESIDENT OF THE COLLEGE

College Station, Texas, November 20, 1914.

*To the President and Members of the Board of Directors of the Agricultural and Mechanical College of Texas.*

GENTLEMEN: I submit herewith this biennial report containing statistical data and progress of departments for the years ending August 31, 1913, and August 31, 1914, respectively, with a brief discussion of the imperative needs and recommendations for the extension of service at the college.

## I.

### ENROLLMENT BY CLASSES.

Class.	1912-13.	1913-14.
Graduate .....	14	9
Senior .....	131	72
Junior .....	115	136
Sophomore .....	232	194
Freshman .....	344	338
Two-year courses, first year .....	118	83
Two-year courses, second year .....	29	33
Specials .....	15	23
Unclassified .....	15	...
Total .....	1013	888

### ENROLLMENT BY COURSES.

	1912-13.	1913-14.
<i>Graduate Courses—</i>		
Agriculture .....	2	5
Chemical Engineering .....	4	..
Civil Engineering .....	3	2
Electrical Engineering .....	2	..
Mechanical Engineering .....	3	2
<i>Four-year Courses—</i>		
Agriculture .....	375	346
Architecture .....	40	31
Architectural Engineering .....	8	17
Chemical Engineering .....	16	13
Civil Engineering .....	126	92
Electrical Engineering .....	155	153
Mechanical Engineering .....	84	73
Textile Engineering .....	18	15
<i>Two-year Courses—</i>		
Agriculture .....	122	104
Textile Engineering .....	25	12
<i>Unclassified—</i>		
Agriculture .....	7	..
Architectural Engineering .....	1	..
Civil Engineering .....	2	..
Electrical Engineering .....	3	..
Mechanical Engineering .....	1	..
Textile Engineering .....	1	..
<i>Specials—</i>		
Agriculture .....	8	19
Architecture .....	6	2
Architectural Engineering .....	..	1
Chemical Engineering .....	..	..
Civil Engineering .....	..	1
Mechanical Engineering .....	1	..
Total .....	1013	888

## ENROLLMENT BY SCHOOLS.

	1912-13.	1913-14.
School of Agriculture .....	514	474
School of Engineering .....	499	414
Total .....	1013	888

Your attention is called to the fact that there has been a gradual increase in the number of agricultural students. The comparative growth by years is instructive and encouraging.

1906-07 .....	88
1907-08 .....	113
1908-09 .....	119
1909-10 .....	246
1910-11 .....	428
1911-12 .....	510
1912-13 .....	513
1913-14 .....	474
1914-15 .....	507

## OCCUPATIONS OF STUDENTS' PARENTS AND GUARDIANS.

Occupation—	1912-13.	1913-14.
Farmers .....	299	302
Merchants .....	142	158
Sons of widows .....	70	80
Stockmen .....	66	50
Physicians .....	47	41
Lawyers .....	41	30
Real estate men .....	37	24
Railroad men .....	35	22
Bankers .....	26	25
Traveling salesmen .....	24	20
Mechanics .....	23	13
Office men .....	22	9
Contractors .....	21	24
Manufacturers .....	18	8
State officers .....	18	15
Lumbermen .....	17	..
Teachers .....	17	25
Civil engineers .....	12	17
Hotel keepers .....	12	3
Insurance agents .....	11	8
Blacksmiths .....	9	3
Capitalists .....	8	..
Cotton brokers .....	8	5
Ministers .....	8	3
Newspaper men .....	7	4
Dentists .....	6	1
Architects .....	3	1
Painters .....	3	1
Barbers .....	1	1
College presidents .....	1	..
Soldiers .....	1	..
Total .....	1013	888



## STUDENTS FROM OTHER STATES AND COUNTRIES.

<i>States—</i>	1912-13.	1913-14.
Alabama .....	2	1
Arkansas .....	1	3
California .....	1	1
Colorado .....	1	..
Florida .....	1	2
Georgia .....	1	1
Illinois .....	1	1
Indiana .....	1	..
Kansas .....	1	1
Louisiana .....	3	1
Mississippi .....	2	4
Missouri .....	..	2
Nebraska .....	1	..
North Carolina .....	1	1
New Mexico .....	1	..
New York .....	3	3
Ohio .....	1	2
Oklahoma .....	11	3
Pennsylvania .....	..	4
Total .....	33	30
<i>Foreign Countries—</i>		
Germany .....	1	..
Mexico .....	6	7
Philippine Islands .....	1	..
China .....	..	1
Total .....	8	8
Grand total .....	41	38

## COUNTIES SENDING TEN OR MORE STUDENTS.

<i>County—</i>	1912-13.	1913-14.
Bell .....	12	13
Bexar .....	46	33
Bosque .....	11	16
Brazos .....	67	60
Collin .....	18	12
Colorado .....	10	5
Cooke .....	10	11
Dallas .....	44	32
DeWitt .....	13	12
Falls .....	12	4
Fayette .....	12	15
Galveston .....	17	16
Gonzales .....	12	7
Grayson .....	14	9
Harris .....	34	23
Hunt .....	21	16
Jefferson .....	13	9
Johnson .....	8	11
Kaufman .....	10	12
Limestone .....	12	12
McLennan .....	29	26
Navarro .....	21	18
Smith .....	6	10
Tarrant .....	23	25
Travis .....	12	8
Total .....	488	415

## CITIES AND TOWN SENDING TEN OR MORE STUDENTS.

<i>City or Town—</i>	1912-13.	1913-14.
San Antonio .....	40	34
Bryan .....	38	29
Dallas .....	17	20
Galveston .....	12	12
Houston .....	26	13
Beaumont .....	10	..
Waco .....	17	13
Corsicana .....	12	11
Fort Worth .....	20	16
Austin .....	10	7
Total .....	<u>202</u>	<u>155</u>

## IMPORTANT CHANGES IN THE FACULTY.

In June, 1912, after more than twenty-five years' service at the college, Professor F. E. Giesecke, of the Department of Architecture and Architectural Engineering, tendered his resignation to accept a similar position in the University of Texas. He was succeeded by Professor S. J. Fountain, a graduate of this college and of the University of Illinois, and a former student at the Ecole des Beaux Arts, Paris, France.

Effective November 1, 1912, Professor J. W. Kidd, on account of ill health, tendered his resignation as Professor of Physics. Assistant Professor W. T. Wright was placed in charge of the department and later made Professor of Physics.

In August, 1913, after more than twenty years' service at the college, Professor J. C. Nagle, Dean of the School of Engineering and Professor of Civil Engineering, tendered his resignation to accept the chairmanship of the Board of Water Engineers of the State of Texas. Professor D. W. Spence was promoted to be Dean of the School of Engineering and Professor of Civil Engineering.

In June, 1913, Dr. J. C. Blake tendered his resignation as Professor of Chemistry and Chemical Engineering, and Dr. C. C. Hedges, Associate Professor, was appointed to succeed him.

In June, 1913, President R. T. Milner tendered his resignation, effective September 1, 1913. Dean Charles Puryear was appointed by the board President Pro Tem., and served from September 1, 1913, until September 19, 1914, on which date I assumed the duties of President of the college.

The Chair of Agricultural Education was established in 1913 and Professor M. L. Hayes, a graduate of the University of Missouri, was appointed to fill this chair, effective September, 1913.

On January 19, 1914, Associate Professor H. E. Smith was made Professor of Steam Engineering and Superintendent of the Steam Plant.

Effective September 19, 1914, the Chair of Modern Languages was re-established and Dr. C. B. Campbell of the University of Pittsburg was elected Professor of Modern Languages.

In June, 1914, the Departments of History and Economics were separated and Dr. T. L. Kibler, Associate Professor, was made Professor of Economics.

On August 15, 1914, Professor S. J. Fountain died, and Professor R. Adelsperger, formerly Dean of Architecture in Notre Dame, was elected Professor of Architecture.

On August 29, 1914, Professor R. J. Potts tendered his resignation as Professor of Highway Engineering and was succeeded by Professor R. J. Morrison, a graduate of the University of Illinois and of Columbia University.

The above changes affect the faculty proper.

The following additional changes may be noted:

In July, 1914, Mr. C. M. Evans, Superintendent of Agricultural Education, resigned and Mr. Clarence Ousley of Fort Worth, Texas, was elected Director of Extension Service.

Effective July 1, 1914, Mr. H. M. Elliott, of the University of Wisconsin, was appointed Rural Organizer.

## II. DEPARTMENTS OF PUBLIC WELFARE.

---

For convenience I am grouping under this general title departments other than instructional, which include the Medical Department Moral and Religious Activities, Athletics, Extension Service and Experiment Station.

### HEALTH DEPARTMENT.

The report of the College Surgeon shows that during 253 days in 1912 and 1913 there was an average of six men per day in the hospital. This was the year in which meningitis and smallpox were so prevalent in Texas. Two hundred and seventy-six cadets were vaccinated against smallpox and 316 took meningitis vaccination, while 119 took the typhoid inoculation. A number of cases of measles, mumps and a few cases of smallpox were reported by the College Surgeon in the winter of 1913. Two cadets died of meningitis and one accidentally injured himself and died as a result, making a total of three for the year 1912-13. During the session 1913-14 the hospital was open 251 days. Appendicitis was quite common during the year, nineteen cases being reported, eight of which were operated upon. During this year a thorough examination was made for hookworm at the college, but only a few cases were reported. There was only one death at the college during the session 1913-14, and this was due to a cadet being killed by a freight train. The most serious difficulty that the College Surgeon has experienced is in cases of contagious diseases. On account of the poor hospital facilities it is almost impossible to safeguard the interests of the students. I am calling the attention of the Board to the need of a hospital in another connection.

I wish to especially commend to the Board of Directors the efficient work of Dr. Otto Ehlinger, the College Surgeon. He is not only well equipped in technical knowledge, but he possesses many other essential qualifications for such a position as that of College Physician. He possesses the happy faculty of knowing how to practice professional ethics and at the same time loyally supporting the interests of the Faculty. His work is duly appreciated both by the students, the Faculty and the college community.

### MORAL AND RELIGIOUS ACTIVITIES.

The governing authorities of the college are not unmindful of their responsibility in the conservation and the development of character as a means of efficient manhood. The moral problem of youth can no more be ignored by those responsible for college life than the problems of scholastic efficiency. The frank recognition of this responsibility on the part of the Faculty and governing authorities is the foremost evidence that they are worthy to assume the responsibility of their respective activities. President Fitch\* says that this moral problem consists in the frank recognition that "youthful vices are chiefly the perversion of virtues, the abuse of excellencies. They

---

\**The College Course and Preparation for Life*, page 65.



represent, for the most part, not forbidden and unlawful tendencies, but, rather, the highest and most valuable instincts and capacities of the race, abandoned to license and directed to forbidden or unworthy uses." Therefore, it is the supreme problem of those responsible for directing the energies of youth to so organize the activities of college life that law may be substituted for license, that worthy instead of unworthy motives may be the basis of action.

Geographical location makes it necessary for the governing authorities to assume larger responsibilities in directing and organizing religious activities than usually exist at State institutions of learning. It is frankly assumed that this institution must solve the moral problem of the college student through the proper organization of the religious activities of college life. In the past it has been customary to have a college chaplain, but more recently the plan has been adopted of inviting ministers of the various denominations and other moral and religious leaders to address the students on Sunday morning. The college has the benefit of the services of a Y. M. C. A. secretary. The young man in charge of this work is in every way qualified to advise with students and to assist in the moral directing of religious work. At the present time a new Y. M. C. A. building is nearing completion. This building has been made possible through the donations of the Alumni and other friends of the college. It is a handsome structure and when completed will be the center for the social and religious life of the entire institution. The Y. M. C. A. maintains an active organization, the weekly meetings being held on Sunday evenings and are usually well attended. Bible study is encouraged and there are at present 240 students enrolled in what is known as dormitory classes that meet in the various dormitories on Sunday morning.

The Y. M. C. A. is also responsible for the organization of an anti-swearing club which is doing splendid work. An interdenominational Sunday school is also maintained on the campus, and at the present time has an enrollment of 265 students and teachers.

I am glad to be able to report that these various religious activities are contributing in many ways to the solution of the moral problems that exist in every college community, and I attribute the high moral standards of the present student body at the college very largely to the influence exerted by the agencies named.

#### ATHLETICS.

Athletics at this institution is an essential part of the activities of the college, and it seems should receive the cordial support both of the governing authorities of the college and the Legislature of Texas. There is no reason why athletic sports, if wisely directed, should fail to hold its own in any institution of learning, but in order to do this it must be maintained on a high level, and it must be fully realized by all that it is a means to an end, and not an end to itself. "Rightly administered," says Professor Frank W. Nicolson, Wesleyan University, "it strengthens the weak, improves the weak places in the strong, clears the brain, teaches boys and young men to respect their bodies and to know the relation of a clean, vigorous body to an active



mind and an honorable life. Rightly conducted, it is a school of manly skill, courage, honesty, self-control, and even of courtesy; wrongly conducted, it is a school of bad manners, vulgarity, tricky evasion, brutality—the ideals not of a sportsman, but of a sporting man.”

It is the high purpose of the governing authorities of the college to “rightly conduct” the athletic sports at the Agricultural and Mechanical College, and to that end we encourage football, basketball, baseball, track and other athletic sports. The college is very poorly provided with facilities for physical training. A well equipped gymnasium for indoor instruction and physical training and better facilities for outdoor games and sports are greatly to be desired. At the present time we have a football and baseball coach who looks after track work and basketball at odd times. Under existing conditions only about one-fourth of the number of cadets have the privilege of entering into athletic activities to any appreciable extent. The whole question of athletic activities should have the careful consideration of the Board to the end that more men might be employed to direct these activities and better equipment provided for developing a healthy interest in plays and games.

#### PUBLICITY.

It has been the policy of the Board of Directors to provide for the services of a Publicity Agent at the college for several years. At first the Publicity Agent also acted as Librarian, but as the work grew in importance, he was relieved of library duties. The present Publicity Agent has had charge of this work since January 1, 1913. He reports that 8,000 columns of matter have been printed since he began his term and that each of these articles has had an approximate circulation of something like 25,000.

The following is a brief summary of the report made by the Publicity Agent:

Three distinct classes of articles have been sent to the press. One class deals with news items and feature articles, and this class has been sent to the daily papers exclusively. Each of these articles went to from eight to twenty daily papers. Information articles furnished by the various departments under direction of the Extension Committee and conveying practical information on agricultural and engineering problems were sent to the semi-weeklies and farm papers, twelve in number. The department has published a weekly bulletin, also this news service being sent to 300 of the better county and farm papers and covering practically the entire State. This news service also contains articles on agricultural topics.

#### *Special Projects.*

“Aside from my regular publicity duties I have published two special editions of the Battalion, the student weekly, one being a Y. M. C. A. number and the other a special edition which was sent to every male senior student of Texas high schools. The department prepared copy for a special issue of the Bryan Daily Eagle, one entire section of eight pages being devoted to agricultural and mechanical features.

Aside from this work I attended the Dallas State Fair, both in 1913 and in 1914, and the National Corn Show in Dallas in February, 1914, giving publicity to the college exhibits through the Dallas press. Very good results were obtained at these fairs, the three daily papers there carrying a story on the exhibits each day. In March, 1914, I was absent practically all of the month looking after the publicity work on the Katy-Agricultural and Mechanical College agricultural train. Again in August I was absent for two weeks on the Katy-Agricultural and Mechanical College good roads special. Both the Dallas and Galveston News carried articles daily on these special trains and the other State papers gave the trains good notices frequently. In addition we enjoyed splendid co-operation with the papers at towns where stops were made.

### *Pictorial Bulletin.*

In the year beginning September, 1913, more than half of the funds appropriated for this department were expended in the publication of a Pictorial Bulletin giving a comprehensive idea as to the size and work of the institution and the activities of the students. There were 10,000 of these bulletins published and the total expense was a little more than \$518. The remainder of the \$1,000 appropriated for the department for that fiscal year was spent for office supplies, stamps, traveling expenses, etc. When I came to the college in January of 1913 my department was without funds. Office equipment, with the exception of a typewriter, was borrowed from other departments."

As this report shows very clearly, the present Publicity Agent has made wise use of his opportunities, and he should be encouraged in every possible way, as he is rendering good service both to the college and to the people of Texas.

### EXTENSION SERVICE.

The creation and organization of the Extension Service of the college is one of the distinct advances made by the college during the biennium covered by this report. The Department of Extension had its beginning in a resolution offered by Director R. L. Bennett, and adopted by the Board of Directors on August 6, 1912. It should be stated, however, that previous to this date members of the Faculty and officers of the Experiment Station had given generously of their time to the people when called upon, or when opportunities were presented through correspondence, press articles and public addresses.

Mr. C. M. Evans was the first director of the Department of Extension and rendered important service to the institution until the time of his resignation in July, 1914. He was succeeded on August 15, 1914, by Mr. Clarence Ousley, whose long interest in agricultural matters, his careful study of rural economic problems and his distinguished public service in Texas, give assurance that this department of the college will be wisely and efficiently directed.

I am submitting herewith a brief report of the Extension Department over the signature of the new director, which I trust will be carefully considered by the Board.

## EXPERIMENT STATION.

I am also submitting for your consideration the report of Mr. B. Youngblood, director of the Texas Agricultural Experiment Stations, which shows that this important department has achieved important results during the two years covered by this report. This work has been of inestimable value to the agricultural interests of Texas, and on account of inadequate funds this department in the past has been unable to even make a beginning in the broad field of agricultural experimentation; however, a more liberal attitude has been assumed and the department is receiving increased financial support from the State Government. Your attention is carefully invited to the divisions of the work by the Experiment Station into the station organization, service, the publications issued and the number of their distribution, and to the work actually accomplished and in course of investigation.

I am convinced from what investigation I have had time to make that the director is both competent and devoted to his work, and that his department is well organized and efficient.

## PROGRESS OF DEPARTMENTS.

*Agricultural Education.*

The establishment of the Department of Agricultural Education represents one of the most progressive steps taken during the period covered by this report. The college is a vital part of the educational system of Texas, and as such the institution can and should render an important service to the cause of agricultural education. The fact that twenty-one of the agricultural colleges of this country have recently organized departments of agricultural education through which to train teachers in agriculture for the teaching of this subject in the public schools of the country is sufficient vindication of the wisdom of the policy of maintaining such a department in the Agricultural and Mechanical College of Texas. The institution has been fortunate in securing for the head of this department a man technically trained in agriculture, and who has also specialized in education. This department of the college should not only train teachers for agricultural education, but through the instructors of the department much information should be disseminated to those also teaching the subject of agriculture in the public schools of the State. The teachers of Texas should more and more look to the Agricultural and Mechanical College for instruction and guidance in the science of agricultural education.

*Agronomy.*

The Department of Agronomy has grown in significance and scope in recent years in all of our agricultural colleges and the department at this institution has proven no exception to the rule. The work includes the study of soils, farm crops, problems of farm management and marketing, agricultural engineering and farm terracing. Agricultural engineering and farm terracing are new divisions of work in this department. A number of new courses have also been



added to the Department of Agronomy, and include the following: Plant breeding, crop ecology, soil mapping, marketing problems, cost accounting and advanced farm management. In addition to these, eleven courses in the various phases of agricultural engineering have been provided under the work of this department.

### *Animal Husbandry.*

The most significant work of this department has been the success of the student judging teams that have participated in the International Student Live Stock Judging Contests at Chicago and elsewhere, and the many prizes that have been won by the students of the college working in this department. The results may be regarded as remarkable when we consider that the department has no building, the barns are insufficient and dilapidated, and the live stock equipment quite limited.

### *Biology.*

This department has materially strengthened its work in rural sanitation and in dairy bacteriology during the period covered by this report. A course in sanitary water analysis for students in civil engineering in their junior year has also been added.

### *Chemistry and Chemical Engineering.*

The most noticeable achievement of this department during the past biennium is the establishment of a Museum of Industrial Materials, showing the different products of different industries from the crude materials to the finished product. The department is also preparing exhibits to send to county fairs. The head of the department is very wisely emphasizing the cotton seed oil industry in the chemical engineering work, and he is preparing to establish in the laboratories of the college a working model of the cold and hot processes of extraction, which can be used for student work and investigation. Great progress in chemical engineering may be expected at the college within the next few years if adequate appropriations are available.

### *Civil Engineering.*

Probably the most important achievement in this department during the past biennium has been in the field of highway engineering. The growing importance of the whole question of good roads has given larger emphasis to this department of engineering at the college. The work is now carried on by Professor Morrison and Associate Professor Coghlan. Mr. G. D. Marshall has been sent by the United States Government to Texas to work in the interests of good roads under the provisions of the Smith-Lever act. This division of the Department of Civil Engineering will undoubtedly render great service to the people of Texas in the next few years. The professors of engineering at the college have voluntarily formed what is known as the Texas Engineering Experiment Station, the object of which is to supply important information to the general public through printed bulletins and to make important investigations in the field of engineering. While the work has been purely voluntary, and those as-

suming the burden of the work receive no compensation therefor, it is believed that an opportunity for great service will result from their efforts.

### *Electrical Engineering.*

The head of this department reports continued progress and development during the past biennium. A two-year course in electrical engineering is now in successful operation, a one-year course in telephony has been outlined, but limited funds have prevented the purchase of needed equipment to inaugurate this work. Several courses in electrical engineering offered by correspondence have had good beginnings. A weekly seminar has been inaugurated among the instructors, which is increasing the efficiency of the departmental teaching staff. A number of items of material for laboratory equipment has been added.

### *Mechanical Engineering.*

While this department is suffering greatly because of poor laboratory space, inadequate equipment and limited teaching force, the department shows satisfactory progress. A two-year course for power plant operators has been added to the curriculum and the department has a foundry with fairly good equipment. In this connection I might explain that the manual arts and mechanical engineering are united in this department. Manual art should be entirely separate from mechanical engineering, and a building should be provided at the earliest practical date to house each of these departments.

### *Textile Engineering.*

This department is fairly well equipped and the results obtained are very satisfactory. The demand for experts in textile engineering has not been very great in Texas, but conditions at the present time seem to indicate that there will be renewed interest in the textile industries, especially those relating to cotton, and it is expected that the department will expand considerably in the next few years.

### *Dairy Husbandry.*

This department was created in June, 1912, and since that time the dairy work has been completely reorganized and the laboratory and creamery have been equipped with modern apparatus and machinery. The department is growing in efficiency, and its possibilities are fully realized by the teaching staff of the department and the college authorities.

### *Department of Economics.*

Economics has not received the attention that its importance deserves until within the last year. The Department of Economics and History has been in charge of one professor. These departments were practically separated and the economics assigned to an associate professor. Beginning with the current year economics was made a co-ordinate department with the other departments of the college, and the associate professor was raised to the rank of full Professor



of Economics. In my judgment the number of courses offered in this department should be greatly extended. Courses in rural economics, rural sociology, transportation, money and banking, taxation, etc., should be offered. The department should also be made the clearing house for the study of social and economic problems peculiar to Texas, and the professor in the department should work in co-operation with the Extension Service in the solution of the problems of rural credit, transportation and business organization.

#### *Entomological Department.*

The Department of Entomology differs from the other departments of the college in that it was created by the Legislature (1899), primarily for the purpose of investigation and research, and teaching was regarded as a secondary function of the department. The Legislature from time to time has also seen fit to require additional services from the department. At the present time the head of this department is Professor of Entomology as well as "entomologist in charge" of the Experiment Station and State Entomologist of Texas. The department is charged directly by law with the investigation of insect pests of the State, the eradication of foul brood disease of bees, investigation of beekeeping and the dissemination of information concerning methods of combating insect pests and personal assistance in the case of severe insect outbreaks. It is easy to see that the scope of the work requires a considerable amount of money and a larger staff of specialists, both of which have been inadequate for the larger purposes of the department, but great results have been obtained with the funds and help available. In 1912-13 the department erected an insecticide building 46x38 feet, two and one-half stories high, frame construction, at a cost of \$1,200, and installed therein an equipment of spraying machines, including a 3½-horsepower sprayer and a stock of insecticides for the use of the students in entomological practice work, together with an insecticide storeroom and insecticide laboratory, the latter being equipped with suitable apparatus. The department is perhaps better equipped for giving instruction in entomology than any other institution in the South. The importance of the department to Texas is easy to realize when we understand that the estimated loss annually in Texas due to destructive insects amounts to \$140,000,000. This department deserves encouragement and liberal appropriations by the Legislature.

#### *Horticulture.*

This department comprehends the following divisions: Vegetable gardening, pomology, landscape art and floriculture. At the present time six courses in forestry are offered in this department. In this connection I wish to direct the attention of the Board of Directors to the desirability of making forestry a co-ordinate department in the college. The forestry industry and the conservation of our forest interests are of immense importance to Texas. In another generation, at the present rate of destruction, practically all of our forests will be gone. The college owes it to the interests of Texas to provide for a professor in charge of forestry not only to offer instructions in the

subject, but to make investigations of the forest conditions of Texas, and recommend suitable legislation for the preservation and conservation of the timber interests of the State.

### *Military Science.*

The Military Department of the college continues to hold its rank as one of the ten most distinguished military institutions in the United States, an honor it has held for the past five years. The last annual inspection was made on April 9 and 10, 1914, by Captain H. L. Laubach, an officer of the regular staff, and he reports that "Since my inspection of 1911 the institution has not deteriorated in any way. It has advanced in discipline and in the training of cadets to act as officers." This report also commends the splendid work done by Lieutenant Levi G. Brown, Thirteenth Cavalry, United States Army Commandant, who has just been succeeded by Second Lieutenant James R. Hill, Thirteenth Cavalry, United States Army, who entered upon his duties on the opening of the present term September 21, 1914, and in the short time of his connection with the institution has given every assurance and promise that under his direction the corps will maintain the high standards of efficiency attained by his able predecessors.

### *Physics.*

This department has been greatly handicapped during the period of this biennium because of the veto of the Governor of the appropriations for this department for both years. It is utterly impossible to teach physics without adequate material and equipment. The department has met the crisis, however, by having the students make such pieces of apparatus as were possible to be made in the department. More than the average available funds for laboratory equipment will be needed for the next biennium because of the limited amount of additional equipment that has been available for the past two years, and I sincerely hope that this department may receive due encouragement through adequate appropriations for its operation.

### *Veterinary Science.*

The large service that has been and is being rendered by this department is too well known to require recital here. The preparation and distribution of serum for hog cholera is one of the noted achievements of the departments, which will be submitted to you in detail in a special report. There should be established at the college a School of Veterinary Medicine. The Board of Directors in their Eighteenth Biennial Report (see pages 11, 12 and 13) recommended that a building be provided for this purpose and the Legislature appropriated \$100,000 for this specific purpose, but it was vetoed by the Governor. The loss of animals from anthrax, Texas fever, hog cholera, tuberculosis, parasites of sheep and goats and poultry diseases are too numerous to be estimated, and the State can ill afford to delay longer opportunities for the study of all these diseases.

*Other Departments.*

In my judgment, the Departments of English, Modern Languages and History should receive larger emphasis in the college curriculum. There is constant danger that an institution whose primary purpose is to train young men for vocations will reduce the cultural subjects to such an extent as to transform the institution into a trade school. It is clearly recognized that the proper adjustment of the curriculum between cultural and industrial subjects is a difficult problem. I believe we should recognize frankly that cultural subjects are broadly vocational and should constitute a comparatively important place along with our special subjects leading to the preparation for special vocations. The Faculty recognizes the importance of making the proper adjustment here, and from time to time special recommendations will be made to the Board with reference to this adjustment. The appropriations sought for these respective departments are urgent, and should be approved.

## III.

## NEEDS AND POSSIBILITIES OF THE AGRICULTURAL AND MECHANICAL COLLEGE.

The measure of the needs of the Agricultural and Mechanical College of Texas must be determined by estimating the possibilities of the institution for real service to the people of Texas. These elements should never be disassociated. One should be the measure of the other; however, economic and financial conditions compel a classification of the needs of the institution into those that may be regarded as imperative and those that are necessary for efficient service, but may wait for a season. The college authorities fully realize that under the stress of present conditions in Texas only the imperative needs of the institution should be presented for consideration. There is an impression in the minds of many people that our institutions of high learning in preparing their budgets submit estimates far in excess of their present needs with a full realization that the aggregate amounts will be greatly reduced by legislative action or executive veto. I do not believe this to be true of the governing authorities of any institution in Texas, and I am absolutely certain that it is not true of the governing authorities of the Agricultural and Mechanical College.

## FARMING INTERESTS OF TEXAS.

A few statistics will better enable us to appreciate the responsibility of the Agricultural and Mechanical College to the farming interests of the State, and serve also as a basis of measurement of the opportunity of the institution to render a service to the State. The total valuation of farm property in Texas, which includes land improvements, farming machinery and live stock, is \$2,218,645,000, and this valuation represents an increase of \$1,256,169,000, or 130.5 per cent, since 1900.\* In the decade between 1900 and 1910 agricultural

---

\*Census report, 1910.



lands in Texas have tripped in value and the value of all property per farm has about doubled. The live stock interests included in the figures above aggregate the sum of \$318,647,000. The total crop valuation reported for the single year 1909 was \$298,133,000. The horticultural interests of the State were estimated by the last report of the census at 1,090,000 bushels of orchard fruit, valued at \$1,061,000.

#### FARM PROBLEMS.

In an agricultural State of such gigantic importance as that of Texas, the most important problems confronting our people are those connected with the open country. The relations of the Agricultural and Mechanical College to many of these questions suggest the presentation of a few of them here for illustrative purposes.

##### *Rural Social Problem.*

Social effort will be largely futile unless we recognize that the larger problem is social rather than economic. The fundamental problem of country life is that of *isolation* just as the city problem is one of *congestion*.<sup>\*</sup> But the social problem must be solved through both scientific and economic effort. Expressed in specific terms: Good roads, rural transportation, free mail and package delivery, rural sanitation and proper housing, are as important factors in the solution of the rural problems as a knowledge of better methods of farming, co-operative organizations and rural credit systems. The twofold aspect in the solution of this problem justifies a co-operation of the efforts of agricultural science and the application of engineering methods. This line of reasoning reveals the fallacy in the statement of President Henry S. Prichett, of the Carnegie Foundation, in asserting that "It is largely accidental that engineering and agriculture have been yoked together in a number of institutions in the United States. As between a college of liberal arts and science and a college of agriculture, no educational argument can be advanced for joining engineering to agriculture." In the first place, it is not accidental that engineering and agriculture have been "yoked together." The connection between the two has been recognized both by experts and statesmen. The present trend in agricultural developments and rural life conditions have more than vindicated the wisdom of this connection and justifies the arrangement.

In the brief survey of the problems that follow it will be easy to recognize the important part to be played both by the schools of agriculture and engineering in the future solution of these problems.

##### 1. *Problem of Tenantry.*

The census report of 1910 shows there are 219,575 tenants engaged in farming in this State. This is an increase in number in the ten years since 1900 of 95,510, or about 120 per cent. The proportion of tenants has increased from 37.6 per cent of all farmers in 1880 to 52.6 per cent in 1910. Unfortunately these figures do not reveal

---

<sup>\*</sup>See Butterfield's *Chapters on Rural Progress*, pages 17-22.

or bear evidence of the living conditions or housing problem of the Texas tenant farmer, but every man familiar with conditions in Texas knows that an improvement in these conditions and a proportional increase in the number of homes owned is very much to be desired. This means the reduction of tenantry in Texas, for in the country the tenant farmer is the marginal man, and as every student of economics knows, it is the marginal man that standardizes wages and living conditions.

## 2. *Farm Indebtedness.*

The burden of indebtedness on the farms in the State is a problem that has had little attention at the present time. No information was sought on this point in the data obtained by the census report of 1900. There is no doubt that the proportional increase in farm land valuation in recent years is larger than the proportional increase in mortgage indebtedness, but according to the census figures of 1910, farm lands and buildings estimated to be worth about \$298,000,000 were carrying a mortgage burden of slightly over \$76,000,000, or one-fourth of the total valuation was represented by outstanding indebtedness. Out of a total of 195,863 farms, 64,000 were mortgaged in varying sums. This creates an economic problem that invites thoughtful attention.

## 3. *Problem of Business Methods.*

This is what Sir Horace Plunkett\* has called the "Weak spot in American rural economy." This is also one of the elements of Mr. Roosevelt's formula for solving the rural problem, which, according to his statement, includes "better farming, *better business*, better living." The time has passed when the farmer can afford to scratch his accounts on a shingle or carry them on scratch paper in his pockets. It is at this point where our farmers are so far behind the Danish and other European farmers. It is obviously futile to develop and disseminate more scientific methods of agriculture without at the same time promoting agricultural co-operative associations, better methods of accounting and more efficient methods of marketing. The Agricultural and Mechanical College is thoroughly awake to its responsibility in connection with this problem, and I believe the institution is rendering its greatest service to the State at this time in its intelligent manner of dealing with this phase of the rural problem.

### NEEDS OF THE COLLEGE.

The rural life problems indicated above, while not all inclusive, are sufficient for a basis for estimating the possibilities of service that might be rendered by the Agricultural and Mechanical College to the State at large. Any reasonable estimate of the needs of the institution, measured by the resources, possibilities and problems of the State, seem small, but this perspective should guide in passing upon the budget for the college.

---

\**Rural Life Problems of the United States*, Chapter 5.



## AGRICULTURAL BUILDING NEEDED.

The School of Agriculture has entirely outgrown its quarters during the past few years. The number of students now pursuing agricultural courses exceed 500. The number of agricultural students has been rapidly increasing in recent years, but the available appropriations for the School of Agriculture have remained practically uniform for a number of years. The President of the College in his report to the Board of Directors in 1911 recommended that a new agricultural building was imperatively needed and the Board included this item in their budget to the Legislature. The First Called Session of the Thirty-third Legislature appropriated \$150,000 for this purpose, but the item was vetoed by the Governor. The building was imperatively needed then and the need is even greater now. I respectfully urge that every possible effort be made to secure an adequate appropriation by the Thirty-fourth Legislature for this building.

## HOSPITAL.

It is surprising to any visitor who comes to the College to find that the hospital is a two-story cheap frame building, heated with stoves and in a poor state of preservation. The building is in every way inadequate and unsatisfactory for the purpose for which it has been designated, and it seems imperative that a modern fireproof building should be provided for this purpose. The report of the military inspector has this to say concerning the hospital: "The building is old and dilapidated and is not in keeping with the rest of the institution, but as to order, cleanliness and management, it is what a modern hospital should be." The Board is earnestly urged to exert every effort to secure an adequate appropriation for this purpose. You are also reminded in this connection that the First Called Session of the Thirty-third Legislature appropriated \$35,000 for a hospital building and equipment. This item was also vetoed by the Governor.

## AUDITORIUM NEEDED.

One of the most pressing needs at the College today is a modern well equipped auditorium to accommodate the cadet corps when assemblies are held and for commencement purposes. It is very strange that it is difficult to get many people to see the importance of such a building as this at our institutions of learning. The interests of no institution can be harmonized without an opportunity to frequently bring the entire student body together for chapel exercises, illustrated lectures, lyceum courses, etc. The building now in use at the College as a chapel was condemned last year and abandoned, the chapel exercises being held for the time in the temporary mess hall. During the past summer a small sum was appropriated for making repairs to the chapel building and it is being used this year for an assembly hall, but the building is too small for the purpose and is regarded as unsafe by many people, besides it is a very unsightly building and equipped with very crude and antiquated furniture. I earnestly urge the Board to give this item.

your most serious consideration and to urge an adequate appropriation by the Legislature for this purpose.

#### VETERINARY SCIENCE BUILDING.

The live stock interest of this State is sufficient to justify the establishing of a School of Veterinary Medicine and I believe a building with adequate facilities should be provided for this purpose. The live stock interest of this State, as reported in the census of 1910, total a valuation of \$318,647,000. The annual loss of animals from anthrax, Texas-fever, hog cholera, tuberculosis, parasites of sheep and goats and poultry diseases are numerous and at the present time the people of Texas are unable to protect their live stock interest from the ravages of these diseases because the number of men in the State with scientific knowledge of veterinary science is inadequate. Provision should be made to reduce the loss due to these various causes as much as possible and that cannot be done until a school of veterinary medicine is established and put into successful operation. This item was recommended to the Legislature by the Board of Directors in the Eighteenth Biennial Report (see pages 11, 12 and 13), and the First Called Session of the Thirty-third Legislature appropriated \$100,000 for this purpose, but this item was also vetoed by the Governor. I desire on the request of the head of the Department of Veterinary Science of the College to renew the appeal for a building for this purpose and in my judgment an appropriation of \$150,000 will be necessary to accomplish this object.

#### ANIMAL HUSBANDRY BUILDING.

This has also been one of the imperative needs of the College for some time and as this department is growing rapidly both in the number of students and in the importance of its work, this need has become imperative. The Board of Directors in their Eighteenth Biennial Report also recommended to the Legislature that funds be provided for this purpose and the item was included in the appropriation bill that was submitted to the Governor, but unfortunately the item was also vetoed. On the recommendation of the head of the department, I again urge you to submit this item in the budget with the hope that the Legislature and the Governor will allow an appropriation for this purpose.

#### HYDRAULIC LABORATORY.

There is a real demand in Texas for young men trained in irrigation and drainage engineering. Of the 417,770 farms in the State, 5,238, or 1.3 per cent, were reported as irrigated in 1909 by the United States Census and 451,130 acres were reported as irrigated. While a large part of this acreage is in the rice growing counties, much of it is in the arid and semi-arid sections of West and Southwest Texas. The Department of Civil Engineering has been unable to supply the demand for graduates for this work and there is at this time not only a necessity for larger facilities, but for men tech-

nically trained especially for this purpose. The Board of Directors included this item in the budget which was submitted to the Legislature in 1912 and the appropriation was passed by the Legislature, but vetoed by the Governor. It is urged that you renew this request by including it in the budget at this time.

#### COTTAGES.

One of the most difficult problems that has confronted me in the short time that I have been connected with the institution has been that of providing adequate living quarters for the teaching staff of the institution. Many instructors of the College are compelled to live in Bryan, five miles away, and under the present conditions of transportation great inconvenience is experienced in getting to and from the College. It is the imperative duty of the State, if the efficiency of the institution is to be maintained, to provide comfortable homes on the campus for housing those who are rendering service to the College. I, therefore, respectfully renew the request made two years ago that ten new cottages be asked for for each of the fiscal years 1914-15 and 1915-16. You will recall also that \$10,000 was appropriated for this purpose by the first called session of the Thirty-third Legislature, but vetoed by the Governor.

#### LIBRARY NEEDS.

The loss of the library by fire when the main building was destroyed in 1912 left the College without a library. All of the books of general reference possessed by the College are now housed in one room of the main building. There is very little opportunity for the students of the College really to do any reading. It will require a comparatively large sum for both years to provide anything like an adequate library for College needs. Ten thousand dollars for each fiscal year of the last biennium was appropriated by the Legislature, but both of these items were vetoed by the Governor. I trust the Board will see fit to renew this request, as better library facilities are imperatively demanded if we are to meet the needs of the student body.

#### STUDENT LABOR.

The funds that the Legislature have provided for this purpose have served the double purpose of economizing in the matter of the labor problem at the College and at the same time provided employment and opportunity for many worthy students who otherwise would have been denied the advantages and opportunities of a college education. It has been the policy of the College authorities to safeguard the use of this fund in such a way that only those students receive the benefit of it who not only need the financial assistance for which the fund was designated, but who in addition thereto are qualified to render efficient service in the work they undertake. Unfortunately, however, the appropriation made for this purpose has fallen far short of meeting the needs of both the students and the institution and many worthy boys are denied the advantages that the College offers, because the funds are too limited to provide work



for all of them. The Legislature and the Governor approved an item of \$10,000 each year for this purpose, and I respectfully urge that you ask that this sum be increased to \$12,000 for the next two years.

#### EXTENSION SERVICE.

The passage of what is known as the Smith-Lever bill by Congress has greatly enlarged the possibilities of service of the Extension Department of the College. As you are well aware under the provisions of this act, the College will receive a fixed appropriation of \$10,000 per year and this sum will be increased in 1915-16 by a maximum conditional sum of \$35,970. The condition imposed by the Federal Government is that the State Government must appropriate a like amount. It is, therefore, very desirable that the College obtain by State appropriation the sum of \$35,970 for 1915-16 in order that we may avail ourselves of the appropriation made by the Federal Government. For 1916-17 the Smith-Lever appropriation will be \$65,945, provided the Legislature appropriates a similar sum. Under normal conditions it would be sufficient for the State merely to meet the Smith-Lever conditional appropriation of \$35,970 for the first year and \$65,945 for the second year, but a careful review of the situation in the light of present experiences and demands from the people which we cannot supply, convinces me that even a larger sum should be provided if the extension service of the College is to meet even approximately the requirements of the public and is to develop within conservative lines of action the opportunities now presented for increasing agricultural efficiency.

The present emergency precipitated by the European war makes an extraordinary demand for trained men to promote organization among farmers for the cultivation and marketing of money crops, which may be a substitute in part for cotton. We are called upon to overcome the habits of many generations and the entire success of diversified farming under this new condition is dependent upon intelligent marketing through organization and co-operative efforts. You are reminded that under the provisions of the Smith-Lever act the activities of the extension service are limited to agricultural and home economics. There are certain projects of vast importance to the agricultural interests of the State, some of which have already been undertaken, that lie entirely outside the scope of the provisions of this law and for which the Legislature will need to make additional appropriations. I therefore urge that you demand that there be appropriated by the Legislature of Texas \$52,130 for 1915-16, which is in excess of only \$6,160 over the appropriation actually necessary to secure the maximum benefit under the terms of the Smith-Lever act. For the second year I suggest that \$65,945 be included in the budget, which is the actual amount required to secure the full benefit of this measure.

#### INSIDE IMPROVEMENTS AND REPAIRS TO BUILDINGS.

One of the most surprising things to the casual visitor to the College campus is that a State institution could exist for 38 years

without concrete walks, or a foot of paved driveway. I am sorry to say that very little attention has been given to the question of beautification of the campus, but aside from the desirability of making the campus present an attractive appearance, there is a more imperative demand that provisions be made for necessary walks during rainy weather. At such times the passage between buildings is almost impossible. I earnestly recommend that at least \$10,000 be provided immediately for this purpose, and this fund should be greatly increased from time to time.

#### CONCLUSION.

I am greatly indebted to the Deans, Registrar and members of the Faculty for much of the information contained in this report, as the limited period of my connection with the institution has made it impossible for me to acquire first hand information concerning the work of the past two years; however, in estimating the needs of the institution for the next two years, I have not only consulted the officers and the Faculty of the institution, but I have made a first hand investigation of the needs for each item that I am recommending to you for consideration and I am convinced of the imperative nature of each. Permit me in this connection to acknowledge my appreciation for the co-operation that I have received from the members of the Faculty, instructors and officers of the institution. I find that the devotion and interest of those connected with the institution justify the commendation and approval of the Board and the approbation of the people of Texas.

The students, Faculty and community residents are duly appreciative of the efforts put forth by the Board in their behalf.

Respectfully submitted,

W. B. BIZZELL,  
President.



# REPORT OF DIRECTOR OF EXTENSION

---

*President W. B. Bizzell, Agricultural and Mechanical College Campus.*

SIR: I submit herewith a summary of the Extension Service from its formal organization in 1912 to this date:

First, permit me to say that I came to the office of Director on August 15, 1914, consequently the statements made concerning the work prior to that date are based upon the reports of my predecessors on file in this office, to which I refer you for any further details you may wish.

## *Historical and Financial.*

The Extension Service had its beginning in a resolution formally offered by Director R. L. Bennett and adopted by the Board of Directors on August 6, 1912, though previously for many years members of the Faculty and officers of the Experiment Station had given information, both general and specific, to the people when called upon or when opportunity presented by correspondence, by press articles, and by public addresses, and for some years preceding correspondence courses had been conducted systematically, and with gratifying results.

Under the original Board resolution a committee was constituted to direct the work of extension, composed of the Dean of the School of Engineering, the Dean of the School of Agriculture, the State Chemist, and the Director of the Experiment Station. By subsequent amendments the Dean of the College and the Director of Extension, the latter serving as chairman ex officio, were added to the committee, and the committee was made advisory to the Director.

The committee was able to accomplish comparatively little from its organization, September 1, 1912, to July 1, 1913, for lack of funds, except in the way of correspondence and occasional lectures. Legislative appropriations for expenses in 1913-14 and 1914-15 were vetoed, but the Board of Directors provided \$3,100 for running expenses and \$6,500 for salaries in 1913-14, and provided the sum of \$10,550 for the fiscal year 1914-15.

Under the terms of the Smith-Lever act of the Sixty-third Congress the Extension Service was brought into legal and formal co-operation with the Federal Department of Agriculture, and on July 1, 1914, the sum of \$10,000 became available to be expended during the current fiscal year upon projects approved by the College authorities and the United States Secretary of Agriculture. Previously there was an agreement between the Federal Department of Agriculture and the College authorities whereby all the work of the Federal department in this State came into co-operation with the College. The agreement under the Smith-Lever act made more definite the previous agreement to co-operate. By the terms of this agreement it is now a matter of law, whereas it had been before a

matter of consent. The county demonstration agents to the number of about 100 in Texas, girls' canning club agents to the number of about 29 in as many counties in Texas, the boys' corn clubs and pig clubs, five district agents, the State agent, the assistant State agent, and superintendents of boys' and girls' clubs all come under the co-operative direction of the Federal department and the College. In many cases the Federal department pays both salaries and expenses; in some cases the counties pay part of the salaries and the Federal department the remainder; in some cases the College contributes the expense in service in which the Department of Agriculture pays the salary. Under this agreement with its budget of apportionment, and under the budget apportioning the funds provided by the Board of Directors, work was inaugurated for the current fiscal year along the following lines: Pig Club work, Dairying work, Cream work, Hog Cholera work, Rural Highway work, Poultry work, Rural Organization, Correspondence Instruction and Home Economics. These are in addition to the regular work of the county demonstration agents to the number of about 100, and the work of the boys' and girls' clubs.

### *Diversifying and Marketing.*

Without neglecting the foregoing projects, which are, for the most part, matters of agreement between the Federal Department and the college, the energies of the Extension Service and of the Director have been addressed during the last few months in aid of farmers in the emergency precipitated upon the cotton industry by the European war. The Director was called upon during the latter part of August and during a large part of September to give much time and personal attention to legislation providing a system of warehouses and marketing which had been presented to the second called session of the Thirty-third Legislature. As this act was of particular value to farmers and was especially needed in the cotton emergency, it was deemed a proper matter for the Director to consider and to promote. By those best informed on the subject of warehouses and marketing conditions in general, it is believed that the farmers' warehouse and marketing act will prove to be of very great value at all times, and of particular value at this time, since it provides a means of organization of the producers and the sale of farm products, and of rural credit as well.

Immediately after the adjournment of the special session the heads of departments at the college, who have direct touch with farming in its scientific and practical aspects, were invited to join in the preparation of a bulletin on money crops that could be grown in the place of cotton. After due consideration the bulletin was issued and circulated to the number of 25,000, to which may be added 10,000 printed and circulated by the University of Texas in aid of the Extension Service of the college.

The dissemination of this information was the smaller part of the task. The greater task was the organization of the farmers for the growing and marketing of the substitute crops. Without such organization diversification would likely be disappointing for the reason

that crops other than cotton are not so easily or dependably marketed, and can be marketed successfully only in bulk by co-operation. Lacking the funds for a campaign of organization, the department has asked the aid of the commercial secretaries of the State in conducting campaigns of organization in their several communities, and at the time of making this report there is reason to believe that many of the commercial clubs will join in the effort.

#### *Exhibits.*

Exhibits from the college, the Experiment Station and boys' and girls' clubs have been made periodically at the State Fair at Dallas, at the Waco Cotton Palace, at the National Corn Exposition in February, 1914, and at a few county fairs. An agricultural train devoted chiefly to live stock and dairying was operated by the Missouri, Kansas & Texas Railway for a period of twenty-eight days, March 5 to April 3, 1914, to which the college gave the services of several of its Faculty and Extension workers. The train made 126 stops, and it is estimated that 130,000 visited the exhibits and nearly as many heard the lectures. It is impossible to calculate how many people saw the exhibits at the various fairs, but in the aggregate they will number hundreds of thousands.

#### *Correspondence Courses.*

From first to last several hundred persons have been enrolled in the correspondence courses. The number now taking regular instruction is ninety-six. There has been no little difficulty in conducting this department for the reason that the college at present offers no courses in academic subjects which attract teachers and others looking for certificates or degrees. A thorough review of this work is now under way for the purpose of enlarging its usefulness and increasing its popularity. Correspondence courses are conducted in the following subjects: Animal husbandry, dairying, creamery management and butter making, cotton classing, entomology, horticulture, poultry culture, nut culture, electrical engineering, elementary electric wiring, elements of telegraphy and elements of telephony.

#### *Bulletins.*

Bulletins issued by the department now in press and about to be issued up to the first of January are as follows: *Extension Work and Correspondence Courses*, *Money Crops in Place of Cotton*, *Peas and Peanuts*, and *Dairying*.

#### *Short Courses.*

Gratifying success has been achieved in conducting farmers' short courses in local communities. From June 29 to the present date, chiefly during July and August, short courses of three to five days each have been conducted at fourteen places. These short courses are conducted, as a rule, by one professor and two or more assistants. They are, for the time being, schools of agriculture and animal husbandry in their most practical aspects. The attendance has been from 40 to 300 adults, who have shown the deepest interest and manifestly received material benefit.

#### *Agricultural Education.*

This department has prepared, in co-operation with the State De-



partment of Education and the University of Texas, a valuable bulletin outlining courses of agriculture in public schools. The department has written more than 800 letters, conducted correspondence courses, visited forty-three places, attended twenty-eight meetings and inspected a large number of local schools.

#### *Agronomy.*

This department has answered 1,214 inquiries, conducted six correspondence courses, involving much labor in examining and correcting papers, has delivered thirty or more lectures, has participated actively in the short courses, and has furnished valuable assistance in all exhibits and demonstrations.

#### *Biology.*

This department has answered 300 or more letters concerning sanitation, has examined more than 100 specimens, and has constructed a model rural sanitary privy, besides circulating a large number of bulletins concerning its operation and construction.

#### *Chemistry.*

The State Chemist has answered 2,000 letters concerning soils, fertilizers, etc., and has examined a number of specimens of minerals.

#### *Dairy Husbandry.*

This department has attended about forty meetings and short courses, answered about 1,700 inquiries, participated largely in the conduct of the correspondence courses, and has furnished live stock judges for many fairs and live stock exhibits.

#### *Horticulture.*

This department has participated actively in the correspondence courses, has furnished teachers or lecturers for sixteen short courses and public meetings, and has answered 3,440 inquiries.

#### *Highway and Rural Engineering.*

This department has attended forty or more meetings and schools of instruction and made many visits to localities desiring special aid or information, has made many exhibits at fairs and on good roads demonstration trains, and conducted a four-weeks' short course in road building at the college.

#### *Mechanical Engineering.*

This department has answered about 250 inquiries, furnished exhibits and prepared drawings for model farm buildings.

#### *Textile Engineering.*

This department has answered about 300 inquiries, has furnished and conducted a correspondence course in cotton classing, and has delivered several public lectures on the subject of cotton classing.



*Veterinary Science.*

This department has done a vast amount of work in answering inquiries about live stock diseases, and especially in the prevention and cure of hog cholera. A special veterinarian, furnished by the Department of Agriculture, is now attached to this department, and is making demonstrations in hog cholera cure and prevention in all parts of the State. The department has sent out about 5,000 doses of hog cholera serum to farmers and has made many visits and treated many animals. It has also done work of great importance in the inoculation of cattle for Texas fever. It has in its pens today twenty-seven Hereford cattle from Missouri being treated for Texas fever. The department has examined many specimens from animals that have died of various diseases, and has given information both by mail and wire. It has also examined many specimens of milk supposed to be diseased and many samples of unwholesome live stock feed. It has prepared an exhibit of hog cholera and other diseases for various fairs and public gatherings, and has handled innumerable inquiries for publication in newspapers.

*Rural Organization.*

The Rural Organization Department has participated in eight short courses and lecture meetings, and has actively engaged in the work of organizing the farmers in Brazos and Milam Counties, and has gathered valuable information concerning co-operative organization in Texas and elsewhere.

*Experiment Station.*

The Experiment Station has participated in many of the activities of the Extension Service at fairs and demonstrations, in public meetings, in circulating bulletins relating to its own investigations, has answered many inquiries, and made many demonstrations through the station at College Station and through the ten other stations in the State.

*Press Articles.*

Nearly every department has contributed a greater or less number of press articles and the Publicity Department of the college has furnished almost daily information to the people through the newspapers.

Respectfully,

CLARENCE OUSLEY,

Director.

## REPORT OF DIRECTOR OF EXPERIMENT STATIONS

---

College Station, Texas, October 30, 1914.

*President W. B. Bizzell, Agricultural and Mechanical College, College Station, Texas.*

DEAR SIR: In accordance with your request of October 16, I beg to submit herewith my report as Director of the Texas Agricultural Experiment Station for the past biennium.

An experiment station to be operated in connection with the agricultural college of each State and Territory was provided for by an act of Congress in 1887. The agricultural colleges were established in 1862, but made little progress until the agricultural investigation work was provided for. The establishment of the experiment stations marked a new era for the agricultural colleges. Since that time every college in the country has grown and served its purpose in direct proportion to the amount of emphasis placed upon the investigation work of the experiment station in the respective States.

The Texas Experiment Station, organized January 25, 1888, has been of untold service to Texas agriculture, yet until recently received altogether inadequate support from the State Government, making it impossible for it to comply with any great proportion of the demands made upon it by the farmers of the State. In fact, few States spend as little money for investigation work as Texas. Including all funds, State and Federal, there is spent in Texas but 33 cents a square mile, or 21 cents for each farm, whereas in Ohio, for instance, there is spent \$10.03 a square mile, or \$1.51 for each farm, for investigation work alone. Ohio has made for itself a great experiment station. If Texas were spending as much money per farmer as Ohio, at the present time the funds of the Texas station would amount to more than \$630,000 per annum. If Texas is to have as useful a school of agriculture and extension service as Ohio, it is obvious that better support must be given the Texas Experiment Station, together with its system of sub-stations.

We are pleased, indeed, to report great progress at this time. All investigation work is carefully planned and executed, permanent record is kept of every result, positive or negative, and will be available to the people of Texas for all time. If an experiment station is to serve its purpose, its work must not only be well planned, but its execution must be continuous. Once an investigation is begun it must be carried on uninterrupted until absolutely dependable results have been secured. This means that support for such work must be uniformly adequate from beginning to end of the time required. It is hazardous to experiment station work to be changing men. It is necessary, therefore, to do everything possible to make the investigators happy and contented in the performance of their respective duties.

It is fortunate, indeed, that at last those in charge of the agricultural colleges and experiment stations of the country have sub-di-

vided the work into three specific classes: (1) investigation, (2) teaching students, (3) extension, or carrying the information of the experiment station to those, young or old, who are unable to attend college. Such an arrangement means not only greater efficiency in performance of the duties as sub-divided, but is more easily understood by the people. Heretofore there seems to have been some confusion of ideas as to the real purpose of an experiment station. Most people, failing to conceive of the fundamental nature of station investigation work, looked upon an experiment station as a farm where teachers undertook to show the farmer how to produce crops and live stock. An experiment station is intended to solve problems which the private individual cannot afford, and is not prepared, to solve for himself. To make it plain, therefore, we may say that an experiment station is the State agency, the purpose of which is the solution of agricultural problems. The materials necessary for the accomplishment of its functions are: (1) properly trained and experienced men for the various lines of investigation, such as stock feeding, breeding, soil improvement, crop production, dairying, and so forth; (2) places for these specialists to work, consisting of laboratories, green houses and platted fields, and the necessary scientific apparatus and equipment for each; (3) necessary equipment for the laboratories, green houses and field work; (4) methods of dissemination, which consist of necessary clerical force and materials and equipment for carrying on a heavy correspondence, bulletins for distribution to those interested, and dissemination through the extension service of the agricultural college.

An experiment station inadequately supplied with any of the above requisites to successful work is as a chain with a missing link. It is often the case that failure on the part of the State to make a business estimate of the needs of the experiment station system forces the director and his staff to turn their energies from their work proper to the business of supplying missing links. So far as the State is concerned, it is poor economy, indeed, for station men to find it necessary to engage in money making in order to secure sufficient funds for the pursuit of their investigations. On the other hand, the people of the State should require that every dollar appropriated is efficiently and economically expended in the study of agricultural problems, and that nothing incidentally produced in the laboratories, green houses or on the farms goes to waste. Believing this to be the will of those concerned, the Texas station disposes of everything of value produced which cannot be utilized by the station. The proceeds so derived are placed in the station treasury and are expended upon requisition and voucher in identically the same manner as the regular appropriation.

#### STATION ORGANIZATION.

In order to understand what the Station has accomplished during the past two years, it is necessary to have an idea as to its organization.

There is a Main Station at College Station, and eleven substations in various parts of the State. At Chillicothe there is another substation, carried on in co-operation with the United States Depart-



ment of Agriculture, but this substation is maintained almost entirely by the Government. The Main Station is composed of nine subdivisions, as follows:

- Division of Veterinary Science.
- Division of Chemistry.
- Division of Horticulture.
- Division of Animal Husbandry.
- Division of Entomology.
- Division of Agronomy.
- Division of Plant Pathology and Physiology.
- Division of Farm Management.
- Division of Feed Control Service.

The Division of Farm Management is conducted in co-operation with the Office of Farm Management, United States Department of Agriculture. All expenses of this division have been borne by the United States Department of Agriculture.

The following list gives the personnel of the Experiment Station staff:

#### Administration:

- B. Youngblood, Director.
- A. B. Conner, Assistant Director.
- Chas. A. Felker, Chief Clerk.
- A. S. Ware, Secretary.

#### Division of Veterinary Science:

- M. Francis, Veterinarian in Charge.
- H. Schmidt, Assistant Veterinarian.

#### Division of Chemistry:

- G. S. Fraps, Chemist in Charge.
- J. B. Rather, Assistant Chemist.
- J. W. Chewning, Assistant Chemist.
- R. H. Ridgell, Assistant Chemist.

#### Division of Horticulture:

- H. Ness, Horticulturist in Charge.
- W. S. Hotchkiss, Horticulturist.

#### Division of Animal Husbandry:

- J. C. Burns, Animal Husbandman in Charge.
- J. M. Jones, Animal Husbandman, Breeding Investigations.

#### Division of Entomology:

- Wilmon Newell, Entomologist in Charge.
- F. B. Paddock, Entomologist.

#### Division of Agronomy:

- A. B. Conner, Agronomist in Charge.
- A. H. Leidigh, Agronomist in Charge of Soil Improvement.
- H. H. Jobson, Assistant Agronomist.
- Assistant Agronomist .....

#### Division of Plant Pathology and Physiology:

- F. H. Blodgett, Plant Pathologist and Physiologist in Charge.

#### \*Division of Farm Management:

- Rex E. Willard, Farm Management Expert in Charge.



Division of Feed Control Service:

W. L. Boyett, Supervisor in Charge.  
 J. H. Rogers, Feed Inspector.  
 W. H. Wood, Feed Inspector.  
 T. H. Wolters, Feed Inspector.  
 S. D. Pearce, Feed Inspector.  
 J. M. Schaedel, Feed Inspector.  
 James Sullivan, Feed Inspector.  
 W. M. Wickes, Feed Inspector.

Division of Poultry Husbandry:

T. J. Conway, Poultry Husbandman in Charge.

Substation No. 1, Beeville, Bee County:

E. E. Binford, Superintendent.  
 O. K. Courtney, Scientific Assistant.

Substation No. 2, Troup, Smith County:

W. S. Hotchkiss, Superintendent.  
 J. W. Jackson, Assistant Superintendent.

Substation No. 3, Angleton, Brazoria County:

N. E. Winters, Superintendent.

\*Substation No. 4, Beaumont, Jefferson County:

H. H. Laude, Superintendent.

Substation No. 5, Temple-Belton, Bell County:

A. K. Short, Superintendent.  
 G. F. Jordan, Scientific Assistant.

Substation No. 6, Denton, Denton County:

T. W. Buell, Superintendent.

Substation No. 7, Spur, Dickens County:

R. E. Dickson, Superintendent.

Substation No. 8, Lubbock, Lubbock County:

V. L. Cory, Superintendent.

Substation No. 9, Pecos, Reeves County:

H. C. Stewart, Superintendent.

Substation No. 10, College Station, Brazos County:

(Feeding and breeding substation.)  
 Tom Reddell, Superintendent.

Substation No. 11, Nacogdoches, Nacogdoches County:

G. T. McNess, Superintendent.

*Clerical Assistants.*

Feed Control Service:

Daisy Lee, Registration Clerk.  
 T. C. Stroeter, Stenographer.  
 C. L. Durst, Tag Clerk.

Experiment Station:

C. A. Case, Stenographer.  
 Mattie Thomas, Stenographer.  
 C. L. Durst, Mailing Clerk.

---

\*In co-operation with the United States Department of Agriculture.

## CO-OPERATION.

One of the main policies of the Texas Agricultural Experiment Station is co-operation wherever co-operation is mutually desirable and advantageous. The following is a list of the co-operative memoranda which this Station has entered into:

1. With the Office of Cereal Investigations, United States Department of Agriculture, whereby the work of the substation located near Beaumont, Texas, with rice, is carried on co-operatively. The Government has spent considerable money working in co-operation with the Station at Beaumont.

2. With the Office of Farm Management, United States Department of Agriculture, whereby the Division of Farm Management is operated. All expenses of the work are met by the Office of Farm Management. The Station furnishes headquarters for the Farm Management Expert in Charge, and moral support of the work, pending an appropriation from the State.

3. With the Office of Dry Land Seed Distribution, United States Department of Agriculture, for co-operative work in the dissemination of seeds of dry land crops suitable to Texas. Under this memorandum large quantities of valuable seeds have been distributed to farmers of Texas.

4. With the Office of Forage Crops, United States Department of Agriculture, (a) for the operation of the Chillicothe Co-operative Forage Crops Station, and (b) for general forage crops investigations in the State of Texas.

5. With the Office of Cotton and Truck Disease and Sugar Plant Investigations, United States Department of Agriculture, for general work on plant diseases in Texas, and for the propagation and distribution of rosaceous fruits in this State.

## PUBLICATIONS ISSUED.

During the past two years this Station has issued and distributed publications as follows:

Bulletin 155, 5,000 copies, 4,800 distributed, 200 now on hand.

Bulletin 156, 5,000 copies, 4,700 distributed, 300 now on hand.

Bulletin 157, 30,000 copies, 30,000 distributed, none on hand.

Bulletin 158, 10,000 copies, 9,500 distributed, 500 now on hand.

Bulletin 159, 30,000 copies, 29,000 distributed, 1,000 now on hand.

Bulletin 160, 35,000 copies, 34,100 distributed, 900 now on hand.

Press Bulletin No. 3, N. S., 5,000 copies, 5,000 distributed, none on hand.

Twenty-fifth Annual Report, 50,000 copies, 48,000 distributed, 2,000 on hand.

Bulletin 161, 10,000 copies, 7,500 distributed, 2,500 on hand.

Bulletin 162, 10,000 copies, 7,500 distributed, 2,500 on hand.

Bulletin 163, 20,000 copies, 11,000 distributed, 9,000 on hand.

Bulletin 164, 30,000 copies, 5,000 distributed, 25,000 now on hand.\*

Bulletin 165, 10,000 copies, 6,000 distributed, 4,000 now on hand.

Bulletin 166, 15,000 copies, 4,000 distributed, 11,000 now on hand.\*

Bulletin 167, 50,000 copies, 3,000 distributed, 47,000 now on hand.\*

Twenty-sixth Report, 25,000 copies, 1,000 distributed, 24,000 now on hand.\*

Circular No. 1, N. S., 20,000 copies, 13,000 distributed, 7,000 now on hand.

Circular No. 2, N. S., 10,000 copies, 8,000 distributed, 2,000 now on hand.

Circular No. 3, 30,000 copies, 15,000 distributed, 15,000 now on hand.

Circular No. 4, N. S., 15,000 copies, 7,000 distributed, 8,000 now on hand.

Press Bulletin entitled "List of Publications Available," 60,000 copies, 55,000 distributed, 5,000 now on hand.

Total copies published, 475,000; total distributed, 307,100; total now on hand, 167,900.

#### EXHIBITS.

In maintaining Experiment Station exhibits our aim has been to bring out graphically some of the more important problems being studied on the Station. Our first exhibit was displayed at the Texas Farmers' Congress in the summer of 1912, and exhibits were shown at the State Fair of Texas in 1912, and during the spring of 1913 at the Sixth National Corn Exposition. So great was the interest manifested in these displays that it has been decided to repeat them from year to year.

#### CORRESPONDENCE.

The Experiment Station has received and responded to approximately 50,000 inquiries from farmers and stockmen of Texas and other States during the past two years. These figures are exclusive of all letters written by the Extension Staff and members of the Agricultural Faculty.

#### WORK ACCOMPLISHED.

The following is a brief outline of the work accomplished by the Station during the past two years. No attempt is made here to give detailed results, as the publications issued from time to time give definite conclusions for each experiment conducted.

#### *Veterinary Science.*

Under the Hatch Fund, Texas Fever studies have been conducted since the organization of the Station. Dr. M. Francis, the Veterinarian in Charge of this division, states that during the past year 135 animals were inoculated for Texas Fever, and out of that number only three died. Through a number of years the doctor has been able to save 98 per cent of the cattle treated. It has been found that it is not safe to advise ranchmen to make their own inoculations for Texas Fever or to attempt carrying cattle through the fever period.

---

\*Publication just received.

Under the Adams Fund, Dr. Francis, assisted by Assistant Veterinarian H. Schmidt, is studying an obscure, fatal disease of horses and mules, known as "*Infectious Anaemia*." This is a very baffling disease, and no conclusive results have as yet been secured. It has not as yet been determined how the disease is transmitted from one animal to another, but progress is being made in the study, and we hope to have something definite to report in the near future.

### *Chemistry.*

Under the Hatch Fund this division is making analyses of soils, determining the manurial value of feeding stuffs, studying methods of analysis, and similar work.

Under the Adams Fund, Dr. G. S. Fraps, Chemist in Charge of the division, has original research in which he is investigating the fundamental properties of the soil, particularly with reference to phosphoric acid, and the humus and its nitrifying and other biological properties. Investigations are also under way whereby the composition and digestibility of various feeding stuffs have been determined. Much work has been accomplished, and considerable material published, and there is still some material ready for publication.

The new fertilizer law, the enforcement of which is placed in the hands of the chemist, requires considerable investigation work with fertilizers. This work is conducted in co-operation with farmers.

The Bureau of Soils of the United States Department of Agriculture has been of material assistance in the matter of submitting samples of tropical soils for analyses.

The work of the division is well in hand and satisfactory progress is being made.

### *Horticulture.*

The principal work of the Division of Horticulture under the Adams Fund consists of plant breeding, using species and varieties of the genus *Rubus* as material. The object of this study is to produce a more desirable type of dewberry and blackberry by increasing the size, improving the flavor and eliminating the spines. Very satisfactory progress has been made in these lines of work, but the task is not yet complete, and, therefore, no results have been published.

Under the Hatch Fund, tests are under way to determine the longevity of the old Indian peach, as compared with the more popular races of peaches used in this State commercially at this time. Work is progressing nicely on the project, but no results have been published.

Another Hatch Fund study is that of the adaptation of different varieties of European and American grapes to the several sections of the State wherein we have substations. Various stocks are being tried for each section, and some very promising results are anticipated under this project.

### *Animal Husbandry.*

During the past two years two of the most important feeding experiments ever conducted in Texas have been completed and reported



upon by the Division of Animal Husbandry. These results are given in Bulletins 153 and 159 of this Station.

During the year another feeding experiment with steers was begun, but has not, as yet, been completed.

The work of this division is carried on at Substation No. 10, which is the feeding and breeding substation. Details of the work will be given under the caption of that substation. (See pages 55-60.)

### *Entomology.*

The work of the Division of Entomology is better under way than ever before. Mr. Wilmon Newell, Entomologist in Charge of the division, is somewhat overtaxed by the various duties imposed upon him as Professor of Entomology in the college, and State Entomologist, in addition to his duties as Entomologist to the Station. This condition was relieved, somewhat, during the year by the addition to the Station Staff of Mr. F. B. Paddock as Entomologist.

Under the Adams Fund, Mr. Newell, assisted by Mr. Paddock, is conducting original research into a study of inheritance in the honey bee. Much preliminary work has been required in this study. Crosses have been made between the Italian and Carniolan races of bees, and the inheritance of color and other characteristics noted, and the work, generally, is progressing in a very satisfactory manner. Considerable difficulty was experienced by the Entomologist in Charge in the matter of properly breeding parents used in the crosses, because of wild bees. This difficulty was overcome, however, by the establishment of an isolated breeding place on the open prairie, six and one-half miles west of Waller, Texas. Gratifying results have been secured under this arrangement.

Under the Hatch Fund, Entomologist Paddock is studying the life history of the peach tree borer, but the study has not advanced sufficiently far for definite conclusions to be drawn. Mr. Paddock is also studying the life history of the turnip louse, with a view to control measures, and is also conducting a study of the life history and control of the wax moth, but this work has been under way only a short time, and no results are available. These studies, therefore, are being continued under very promising conditions.

Attention is called to the fact that an act of the Thirty-third Legislature of Texas makes the Entomologist of the Experiment Station State Entomologist. Under the supervision of the State Entomologist comes the fowl brood control, provided for by law.

### *Agronomy.*

The work of the Division of Agronomy is being conducted along two general lines: namely, farm crops and soil fertility investigations. This work is in progress at the Main Station farm and at ten substations representing agricultural regions in this State. It is supported by Hatch, Adams, State and private funds. That part of the work conducted at the Main Station farm is supported entirely from Hatch, Adams and private funds which are insufficient to equip the farm with buildings, implements, etc., necessary for the proper conduct of such work. The work at the substations is supported entirely from State funds.

The projects and subprojects under investigation are shown below. Not all of these projects are conducted at any one station, as they have been established with reference to the suitability of the location to their prosecution. They may yield, in addition to information bearing on the agricultural region represented, much general data of value when considered along with similar work at other farms.

*Farm Crop Investigations.*

*Corn.*

1. Variety test.
2. Ear to row improvement.
3. Rate of seeding.
4. Effect of distribution of hills on yield.
5. Effect of intertilled legume crop on yield.

*Cotton.*

1. A fundamental study of inheritance in cotton.
2. Variety test.
3. Yielding power of individual plants.
4. Rate of seeding.

*Rice.*

1. Rice breeding and variety tests.
2. Rice seeding rates and cultural work.

*Legumes.*

1. Cowpea variety and production studies.
2. Soybean variety and production studies.
3. Peanut variety and production studies.
4. Alfalfa variety and production studies.
5. Miscellaneous legumes.

*Small Grains.*

1. Wheat improvement, variety and cultural tests.
2. Oats improvement, variety and cultural tests.

*Grain Sorghums.*

1. Variety tests.
2. Head to row improvement.
3. Rate of seeding.
4. Date of seeding.
5. Distribution of hills.
6. Effect of intertilled legume crop.

*Forage Sorghum.*

1. Sorghum variety and cultural tests.

*Sudan Grass.*

1. Head to row selection.
2. Date of seeding.
3. Rate of seeding.

4. Method of seeding.
5. Sudan-legume mixtures.
6. Seed production.

*Pasture.*

1. Permanent pasture improvement.

*Plant Introduction.*

1. Tests of new crops.

*Soil Fertility Investigations.*

*Crop Rotation.*

1. Rice rotations.
2. Dry land crop rotations.

*Tillage.*

1. Rice seed-bed preparation.
2. Rice cultivation vs. irrigation studies.
3. Depth of plowing.

*Fertilizers.*

1. Fertilizer tests, including green manure crops and barnyard manure.

The unit area for a given crop on all stations is one acre, 8x20 rods in size. Within this unit a series of plats, or a duplicate series of plats, may be carried. The acre units are grouped in rotation systems which are established in duplicate, and therefore allow opportunity for greater replication of plats. It further provides for a change in the direction of rows each year, and in this manner overcomes, to a great extent, possible error due to variation in previous plats. This plating system affords: (1) uniform soil conditions each year, (2) valuable data as to the relative merits of different crop rotation systems, and (3) a clearer understanding and appreciation of the work by visitors.

*Work at the Main Station Farm.*

The experimental work conducted at College has been confined very largely to projects with corn, cotton, oats, legumes and pasture improvement, as shown on outline. Considerable work is also done with crop rotation systems, including a duplicate three-year rotation of corn, oats, with cowpeas plowed under, and cotton; a duplicate four-year rotation of corn, oats with cowpeas plowed under, cotton and cowpeas for seed production; a mixed two-and-four year rotation, carried in duplicate, in which half the crop is cotton, one-fourth corn and one-fourth cowpeas for seed. The rotations are compared for the maintenance and increase of soil fertility to plats cropped continuously. Some depth of plowing tests are being conducted with corn, cotton, oats and cowpeas, as well as some fertilizer tests, including barnyard manure, green manure crops, both with and without acid and rock phosphate.

*Substation No. 1—Beeville.*

The work at Substation No. 1 included projects on grain, sorghums, forage sorghums, Sudan grass, corn, cotton and legumes and small grains. This station carries crop rotations similar to those at the Main Station farm at College Station, except that grain sorghum is used instead of corn.

*Substation No. 2—Troup.*

At Substation No. 2, work is carried with corn, cotton, sorghum-legume mixtures, miscellaneous crops, crop rotations and fertilizer tests. The rotation systems under study at this farm are similar to those in use at the Main Station farm. The fertilizer work includes tests of commercial forms, barnyard manure and green manure crops.

*Substation No. 3—Angleton.*

The work at Substation No. 3 has been confined the past season very largely to the corn project, including all phases as outlined, to a variety test with cotton and to variety and seeding rates work with oats and legumes, as outlined. The rotation systems are similar to those at the Main Station farm.

*Substation No. 4—Beaumont.*

The principal investigations at Substation No. 4 are with rices. At this place, rice breeding and varietal studies are being conducted, in co-operation with the Office of Cereal Investigations, United States Department of Agriculture, together with tillage methods and crop rotation experiments, particularly, with reference to rice. Ten two-year rice rotations and ten rotations in which rice enters in two years out of three are in progress.

*Substation No. 5—Temple.*

The work at Substation No. 5 is principally with cotton, corn, legumes, grain sorghums and oats and miscellaneous crops, as outlined. The same crop rotation system as those conducted at the Main Station are in use, together with some depth of plowing tests.

*Substation No. 6—Denton.*

The work of Substation No. 6 is principally with small grains, including wheat, oats, barley and miscellaneous small grains. Some additional work with corn, cotton, grain sorghums and legumes is also being conducted. The rotations differ from those at the Main Station farm principally in that they allow of a greater percentage of small grain.

*Substation No. 7—Spur.*

Substation No. 7 is conducting work with grain and forage sorghums, cotton, legumes and small grains, as outlined. Four crop rotation systems are under study here, carried in duplicate. These rotations differ essentially from those at the Main Station in that grain sorghum is substituted for corn and with the introduction of fallow plats suited to dry land conditions. Some rather comprehensive tillage



experiments are being planned for this station and will be inaugurated next year.

*Substation No. 8—Lubbock.*

The work for Substation No. 8 is very largely with grain and forage sorghums, cotton, legumes and small grains and miscellaneous crops, as outlined. The rotations carried are similar to those conducted at Spur. Some fertilizer work and also some tillage work is being planned for this Station and will be undertaken in the near future.

*Substation No. 9—Pecos.*

Substation No. 9 is conducting work with grain and forage sorghums, cotton, small grain and legumes, including alfalfa, under irrigation. Rotation and fertilizer work is also in progress. Experiments on the duty of water are being planned with hope of early introduction on this farm.

*Substation No. 11—Nacogdoches.*

The principal work of Substation No. 11 is with tobacco, cotton, corn, legumes and oats, as shown under list of projects. A duplicate three and a duplicate four-year rotation is in use at this station at the present time. Others will be included as soon as possible. Fertilizer work with tobacco, corn, cotton and other crops is in progress on this farm.

A summary of results from each of these Station farms for the past year is included in the latter part of this report.

*Plant Pathology and Physiology.*

The Division of Plant Pathology and Physiology has recently begun a study under the Hatch Fund of the disease known as corn smut. This disease causes considerable losses to farmers of the State each year. Inasmuch as the work has only recently been started, no results have as yet been secured.

Under the Adams Fund the division is continuing the study of the nitrogen tubercle production on the roots of leguminous plants, especially alfalfa, in various soil types. Considerable difficulty has been experienced in getting this work well established, as many unfavorable conditions had to be overcome. The work is now upon a satisfactory basis, and preliminary evidences indicate that satisfactory progress is being made in the study.

Another Adams Fund project is a study of the blossom-end blight of watermelons. Aside from the laboratory work, field studies are being made in the vicinity of Prairie View, Texas, on the farm at that place, in co-operation with the Professor of Agriculture in the Prairie View Normal and Industrial Institute. The Plant Pathologist and Physiologist in Charge of the division reports very satisfactory results from this work thus far.

A good deal of miscellaneous work, such as the identification of plants and plant diseases, is done by this division.

*Farm Management.*

The expenses of the Division of Farm Management are paid by the

Office of Farm Management, United States Department of Agriculture, co-operating with the Texas Station. At the present time Mr. Rex E. Willard, Assistant Agriculturist of the Office of Farm Management, who is Farm Management Expert in Charge of the Division of Farm Management, is temporarily located at Brownsville, Texas, while making a special study of certain farm management problems encountered in the Lower Rio Grande Valley.

### *Feed Control Service.*

According to the State law, the Director of the Experiment Station is in charge of the Feed Control Service. The expenses of enforcing the pure feed law are met by a tax of 10 cents per ton on all feeding stuffs coming under the law sold within the State of Texas.

Considerable progress has been made in giving the law uniform application throughout the State. Feeding stuffs are of a better quality, and their names less misleading than ever before. There is a vast amount of work yet to be done, but this is under way. We are endeavoring to enforce the pure feed law by persuasion rather than by prosecution, although prosecution will be resorted to whenever necessary.

The Feed Control Service has made good progress during the past year in the matter of establishing better standards and definitions for certain feeding stuffs, especially cold pressed cotton seed, ground cold pressed cotton seed, and the ordinary cotton seed meal and cotton seed cake.

### SUBSTATIONS.

It may be interesting to the public to learn of the progress which has been made in the development of the State Substations, both in relation to their physical aspects and the character of work. There is no better evidence of the fact that they have already become of real usefulness to the farmers of the State than the fact that the information emanating from their work is being put into harness on Texas farms, and that thousands of farmers who two years ago had little but criticism for the Substations are now ready to testify to the profitableness of Station ideas.

As the name indicates, the Substation work is subordinate to, and a part of, the work of the Main Station divisions. At the present time the major portion of the work of the Substations consists of field crops and soils studies, but another year the work in horticulture will be put on a permanent basis. Each Substation is to have an experimental garden and orchard, wherein the more important problems of each section in which a Substation is located will be studied. Considerable information upon the subject of floriculture of value to Texas is also being gathered from some tentative work in beautification of each of the Stations.

The following is a summary of the results obtained during the past year at the various Substations. This information is given in part because of its value to farmers, but chiefly to indicate the nature and the scope of the work which the various Substations have under way. Bulletins giving specific results will be published as from time to time data at hand may warrant.

For details as to the results obtained during the past two years I beg to refer you to our Twenty-fifth and Twenty-sixth Annual Reports, copies of which may be had upon application to "The Director, Texas Agricultural Experiment Station, College Station, Texas."

#### NEEDS OF THE STATION.

The Experiment Station system is well supplied at the present time with experiment farms, but poorly supplied in the following respects:

1. We haven't sufficient laboratories and equipment. For the past three years we have been seriously in need of an annex to the present Experiment Station Building, fully as large as the present building. We have inadequate laboratory facilities for the Divisions of Veterinary Science, Chemistry, Entomology, Plant Pathology and no laboratory facilities for the Divisions of Agronomy, Horticulture and Animal Husbandry.

2. Much of the work is dependent upon greenhouses, and because of lack of greenhouse equipment this side of the work has necessarily been omitted.

3. Present demands, because of the extremely heavy correspondence and other routine of Station supervision, are overtaking our present office force.

4. The main experiment farm is receiving no support from the State, but is being maintained entirely out of Federal funds (which must be spent only upon investigation work rather than upon physical equipment), and is sorely in need of buildings. The only equipment to be found on this farm at the present time is a pole crib, the like of which is found upon no other station in the country; a shed, possibly one-twentieth as large as necessary to properly house the experimental crops, and two small tenant houses sadly in need of repair. On this farm we need a foreman's cottage, another tenant house, an implement shed, a seed house and a greenhouse.

Although the work on this farm is well planned and in many respects attractive to leading agricultural scientists, we find that we fail to properly impress station visitors simply because their attention is diverted from the investigation work itself to the matter of our inadequate physical equipment. The Legislature will be asked for \$5000 per annum with which to alleviate this difficulty during the next two years.

If the Main Station were as well equipped as the substations during the past two years, most of the minor difficulties enumerated might be overcome without the necessity of calling attention to them in our reports.

# ITEMIZED STATEMENT OF APPROPRIATIONS NEEDED.

## WORK UNDER WAY.

Main Station.	Per Annum.
Salaries .....	\$10,000.00
General expenses, freight, express, office supplies, equipment etc. ....	5,000.00
Main Experiment Farm .....	5,000.00
Veterinary investigation, Texas fever, infectious anaemia, Hog Cholera, etc. ....	3,000.00
Plant pathology investigations .....	1,000.00
Entomology: for foul brood inspection work.....	10,000.00
Farm management investigations: to supplement an equal amount from the United States Department of Agriculture, for co-operative farm management investigations in Texas..	3,000.00

## NEW WORK.

For soil survey: to supplement an appropriation of \$10,000 per annum from the United States Department of Agriculture for co-operative soil survey work in Texas.....	10,000.00
--	-----------

Total .....\$47,000.00

Attention is especially called to the necessity for the foul brood work. Texas is a great honey state. Foul brood is the greatest menace to this industry. It is a very contagious and fatal disease which destroys the brood of the honey bee. The beekeeping industry represents an investment of three to four million dollars in this State, and is the source of considerable income to a large number of our population, scattered over many counties. The last Legislature made the Entomologist of the Experiment Station *State Entomologist* and placed in his hands the foul brood inspection work, but, unfortunately, made no appropriation whatever for the present and past fiscal year. During this time the foul brood disease has spread over most of the territory which had been freed of the disease by the inspection force. The expenses of adequately enforcing the foul brood law will amount to ten thousand dollars per annum. It is our plain duty, therefore, to ask the next Legislature for this amount.

Our publication fund has never been adequate. During the past year it was necessary to hold back a number of important bulletins simply because we had no funds with which to publish them. Again, this year we have matter on hand for a great many more bulletins of vital importance to Texas agriculture than the appropriation will permit our publishing. Two years ago we asked for five thousand dollars, and secured three thousand dollars. This year we are asking for six thousand dollars, and sincerely trust that the amount will be granted. We could use ten thousand dollars per annum during the next two years to great advantage, but considering the times, have reduced our estimate to six thousand. It is obviously poor economy to spend money conducting investigations and making record of the results if it must be merely filed away, and not made available to the farmers and stockmen of the State. The publication fund of the Station, therefore, is more important than one would casually surmise.

Very respectfully submitted.

B. YOUNGBLOOD,  
Director.



# REPORT OF THE STATE CHEMIST

*President W. B. Bizzell, Agricultural and Mechanical College, College Station, Texas.*

DEAR SIR: I respectfully submit the following report for the two years ending August 31, 1914:

The Chemist of the Texas Experiment Station is designated by the fertilizer law of 1911 as State Chemist. He is charged with the duty of enforcing the fertilizer law, inspecting fertilizers, collecting samples for analysis, having them analyzed and publishing the results. In addition, it is his duty to investigate the composition, properties, and agricultural values of fertilizers, or fertilizer materials, or ingredients for fertilizers, sold in Texas, and conduct experiments and prepare and publish bulletins dealing with fertilizer.

The Director of the Experiment Station has arranged with us to make all analyses of samples of feeding stuffs collected under the feeding stuff law, paying a specified sum for such work. In this connection, it is necessary for us to investigate the adulterants of feeding stuffs, their composition, and the methods of detecting adulterants; and also to a certain extent, the methods of manufacture in order that we may keep up with the advances in feeding manufacture.

During the season ending August 31, 1913, we analyzed 1389 samples of feeding stuffs for the Feed Control, and 628 samples of fertilizer for the Fertilizer Control. During the season ending August 31, 1914, we analyzed 1435 samples for the Feed Control, and 766 samples for the Fertilizer Control. The samples of fertilizer were collected by our inspectors in the course of their regular work. The results of the fertilizer analyses are published in Bulletins 160 and 168 of the Texas Experiment Station.

In addition, we have published a bulletin, "Commercial Fertilizers and Their Use, No. 167," giving information as to the nature and use of fertilizers; and we have carried on some investigations as required by the fertilizer law, results of which are not yet ready for publication.

I give below a financial report for the two years. Under the terms of the fertilizer law, any surplus income remaining after the purpose of the law has been fulfilled, shall be expended by the Board of Directors of the Agricultural and Mechanical College of Texas for such purposes as they shall allow or direct.

## FINANCIAL STATEMENT.

### Receipts.

	1912-13.	1913-14.
Fertilizer Control .....	\$19,364.17	\$21,616.76
Feed analyses .....	5,190.00	5,505.00
Miscellaneous .....	98.02	93.84
Total receipts .....	\$24,652.19	\$27,215.60

## Expenditures.

	1912-13.	1913-14.
Salaries .....	\$ 7,994.27	\$ 8,864.97
Labor .....	988.21	803.22
Printing .....	933.44	927.08
Postage and Stationery .....	306.85	400.54
Freight and Express .....	519.20	572.79
Heat, Light and Water .....	328.42	341.41
Chemical Supplies .....	1,839.48	1,422.65
Books and Periodicals .....	73.70	56.07
Tools, Implements and Machinery .....	146.49	152.20
Furniture and Fixtures .....	673.73	401.69
Traveling Expense .....	775.40	959.75
Repairs .....	973.05	464.39
Incidentals .....	753.04	1,129.93
Total Expenditures .....	\$16,305.28	\$16,496.69
Transeferred to surplus .....	7,075.56	6,000.00
Carried forward and transferred to surplus....	1,271.35	4,718.91
Total .....	\$24,652.19	\$27,215.60

Respectfully submitted,

G. S. FRAPS,  
State Chemist.

# FINANCIAL STATEMENT

---

W. B. Bizzell, President .....	\$5,000.00	
S. G. Bailey, Secretary.....	1,200.00—\$	6,200.00

## FISCAL DEPARTMENT.

W. Wipprecht, Business Manager.....	\$2,500.00	
A. B. Wilcox, Accountant.....	1,500.00	
C. A. Seale, Cashier.....	1,000.00	
M. R. Franklin, Voucher Clerk.....	900.00	
C. B. Nichols, Stenographer.....	900.00—\$	6,800.00

## REGISTRAR'S OFFICE.

C. E. Friley, Registrar.....	\$1,500.00	
M. R. Farrell, Stenographer.....	840.00—\$	2,340.00

## COMMANDANT'S OFFICE.

J. M. Kenny, Assistant Commandant.....	\$1,100.00	
George Smart, Assistant Commandant.....	1,060.00	
John C. Hyland, Assistant Commandant.....	800.00—\$	2,960.00

## BAND LEADER.

B. P. Day, Band Leader.....	\$	1,000.00
-----------------------------	----	----------

## PUBLICITY.

Ike S. Ashburn, Director.....	\$	1,780.00
-------------------------------	----	----------

## Y. M. C. A.

Frank D. Steger, Secretary.....	\$	1,050.00
---------------------------------	----	----------

## LIBRARY.

Mrs. W. H. Thomas, Librarian.....	\$	900.00
-----------------------------------	----	--------

## CAMPUS POSTOFFICE.

R. R. Royall, Postmaster.....	\$	1,200.00
-------------------------------	----	----------

## STENOGRAPHERS.

Four Stenographers—School of Agriculture....	\$3,540.00	
Three Stenographers—School of Engineering...	2,520.00—\$	6,060.00

## DEANS.

Charles Puryear, Dean of the College and Professor of Mathematics.....	\$	3,120.00
E. J. Kyle, Dean of Agriculture and Professor of Horticulture .....		2,750.00
D. W. Spence, Dean of Engineering and Professor of Civil Engineering.....		3,000.00

## AGRICULTURAL EDUCATION.

Martin L. Hayes, Professor.....	\$2,360.00	
J. D. Blackwell, Associate Professor.....	1,800.00—\$	4,610.00

## AGRONOMY.

J. O. Morgan, Professor.....	\$2,500.00	
E. C. Gee, Associate Professor.....	1,800.00	
S. A. McMillan, Associate Professor.....	1,800.00	
J. C. Olsen, Assistant Professor.....	1,800.00	
C. A. Wood, Assistant Professor.....	1,500.00	
M. H. Young, Instructor.....	1,000.00	
J. D. McIver, Student Assistant.....	300.00	
M. T. Garret, Student Assistant..	225.00—\$	10,925.00

## ANIMAL HUSBANDRY.

J. C. Burns, Professor.....	\$2,350.00	
Less Expr. Sta. Salary.....	750.00—	\$1,600.00
L. B. Burke, Associate Professor.....		1,800.00
F. W. Bell, Asst. to Associate Professor.....		1,800.00
W. T. Magee, Instructor.....		1,500.00
F. W. Kazmier, Instructor.....	1,200.00—	\$ 7,900.00

## ARCHITECTURE.

R. Adelsperger, Professor .....		\$ 1,875.00
---------------------------------	--	-------------

## BIOLOGY.

O. M. Ball, Professor.....	\$2,500.00	
H. E. Hayden, Assistant Professor.....	1,350.00	
H. Cassidy, Instructor.....	1,200.00	
E. L. Reed, Instructor.....	1,050.00	
J. H. Ehlers, Instructor.....	1,200.00—	\$ 7,300.00

## CHEMISTRY AND CHEMICAL ENGINEERING.

C. C. Hedges, Professor.....	\$2,500.00	
H. B. Gordon, Assistant Professor.....	1,800.00	
W. P. Nelson, Assistant Professor.....	1,300.00	
A. E. Parmlee, Instructor.....	1,200.00	
M. K. Thornton, Jr., Instructor.....	1,000.00	
W. T. Bryant, Assistant.....	800.00—	\$ 8,600.00

## CIVIL ENGINEERING.

R. L. Morrison, Professor Highway Engn.....	\$2,500.00	
B. K. Coghlan, Assoc. Prof. Highway Engn.....	1,800.00	
A. C. Love, Assoc. Prof. Civil Engn.....	1,800.00	
J. J. Richie, Assoc. Prof. Civil Engn.....	1,900.00	
D. C. Miller, Asst. Prof. Civil Engn.....	1,800.00—	\$ 9,800.00

## DAIRY HUSBANDRY.

J. W. Ridgeway, Professor.....	\$2,250.00	
J. A. Clutter, Instructor.....	1,250.00	
A. L. Darnell, Assistant.....	950.00—	\$ 4,450.00

## DRAWING.

A. Mitchell, Professor.....	\$2,000.00	
G. A. Geist, Assistant Professor.....	1,575.00	
F. W. Redlich, Instructor.....	1,250.00	
Allan Burton, Instructor.....	1,000.00—	\$ 5,825.00

## ECONOMICS.

T. L. Kibler, Professor.....		\$ 1,800.00
------------------------------	--	-------------

## ELECTRICAL ENGINEERING.

F. C. Bolton, Professor.....	\$2,750.00	
J. H. Cannon, Associate Professor.....	1,800.00	
O. B. Wooten, Assistant Professor.....	1,500.00	
Robin Beach, Instructor.....	1,400.00—	\$ 7,450.00

## ENGLISH.

C. P. Fountain, Professor.....	\$2,500.00	
W. H. Thomas, Associate Professor.....	1,500.00	
R. G. Bressler, Instructor.....	1,450.00	
D. B. Cofer, Instructor.....	1,300.00	
P. G. Gunter, Instructor.....	1,175.00	
L. L. Click, Instructor.....	1,100.00	
George P. Wilson, Instructor.....	1,050.00	
G. H. Mullin, Instructor.....	1,000.00	
B. W. Bittle, Instructor.....	1,000.00—	\$ 12,075.00



ENTOMOLOGY.

S. W. Bilsing, Instructor..... \$ 1,500.00

HISTORY.

O. F. Chastain, Professor.....\$2,000.00  
J. E. Abshire, Instructor..... 2,050.00—\$ 3,050.00

HORTICULTURE.

A. T. Botts, Associate Professor.....\$2,800.00  
F. Hensel, Jr., Assistant Professor..... 1,600.00  
T. E. Cowart, Instructor..... 1,300.00—\$ 4,700.00

MATHEMATICS.

R. F. Smith, Associate Professor.....\$1,800.00  
J. W. Mitchell, Assistant Professor..... 1,500.00  
J. N. Michie, Assistant Professor..... 1,625.00  
J. D. Garner, Assistant Professor..... 1,425.00  
D. C. Jones, Assistant Professor..... 1,275.00  
I. C. Nichols, Assistant Professor..... 1,300.00  
J. D. Bond, Instructor..... 1,150.00—\$ 10,075.00

MECHANICAL ENGINEERING.

E. J. Fermier, Professor.....\$2,750.00  
H. E. Smith, Professor.....\$2,500.00  
Less Amount from Power Plant.. 700.00—\$1,800.00  
J. A. Herrington, Instructor..... 1,375.00  
L. L. Chappelle, Instructor..... 1,275.00  
F. J. Bechert, Instructor..... 1,100.00  
C. E. Hanson, Instructor..... 1,250.00  
G. W. Hanson, Instructor..... 1,050.00  
C. G. Martinson, Instructor..... 1,000.00—\$ 11,600.00

MILITARY SCIENCE AND TACTICS.

James R. Hill, Professor and Commandant..... \$ 600.00

MODERN LANGUAGES.

C. B. Campbell, Professor..... \$ 1,800.00

PHYSICS.

W. T. Wright, Professor.....\$2,000.00  
W. H. McPheeters, Instructor..... 1,225.00  
F. J. Skeeler, Instructor..... 1,150.00  
E. E. McAdams, Instructor..... 1,100.00  
E. F. Bates, Instructor..... 1,050.00—\$ 6,525.00

TEXTILE.

J. B. Bagley, Professor.....\$2,250.00  
C. S. Tatum, Assistant Professor..... 1,450.00—\$ 3,700.00

VETERINARY SCIENCE.

M. Francis, Professor.....\$3,000.00  
Less Expr. Sta. Salary..... 500.00—\$2,500.00  
R. P. Marsteller, Associate Professor..... 2,250.00  
R. C. Dunn, Instructor..... 1,600.00—\$ 6,350.00

ATHLETICS.

C. B. Moran, Physical Director..... \$ 2,200.00

Total .....\$133,130.00

## INDUSTRIAL STAFF.

## BUILDINGS AND GROUNDS.

A. C. Love, Superintendent.....	\$2,500.00	
Less Salary—C. E. Department.....	1,800.00—	\$ 700.00
August Thomsen, Keeper of Grounds.....		1,300.00
W. W. Smith, Plumber.....		1,500.00
C. O. Watkins, in Charge of Janitors.....		1,100.00
W. McGregor, Night Watchman.....		600.00
Three Helpers on Grounds @ \$480.00.....		1,440.00
One Plumber's Helper.....		600.00
C. J. Goretzky, Carpenter.....		1,000.00
About 17 Janitors for nine months.....		5,355.00
About 3 Janitors for 12 months.....(about)		1,320.00
One Janitor for Horticultural Department.....		325.00
One Janitor for Veterinary Department.....		390.00
One Janitor for C. E. Department.....		420.00
One Janitor for E. E. Department.....		315.00—\$16,365.00

## HORTICULTURAL GARDEN.

One Gardener .....	\$ 600.00
--------------------	-----------

## MECHANICAL ENGINEERING SHOP.

About four Laborers (about) .....	\$ 1,000.00
-----------------------------------	-------------

## POWER PLANT.

H. E. Smith, Superintendent.....	\$2,500	
Less Salary M. E. Department.....	1,800—	\$ 700.00
C. D. McMillan, Engineer.....		1,300.00
Three Engineers @ \$900.00.....		2,700.00
Four Ash Haulers @ \$540.00.....		2,160.00
Sundry Day Laborers.....(about)	300.00—	\$ 7,640.00

## AGRONOMY DEPARTMENT.

Sundry Day Laborers.....(about)	\$ 360.00
---------------------------------	-----------

## ANIMAL HUSBANDRY DEPARTMENT.

Two Herdsmen.....	\$ 1,540.00
-------------------	-------------

## CHEMICAL LABORATORY.

Sundry Laborers.....(about)	\$ 180.00
-----------------------------	-----------

## ELECTRICAL ENGINEERING LABORATORY.

One Helper .....	\$ 315.00
------------------	-----------

Total .....	\$27,820.00
-------------	-------------

## SELF-SUPPORTING DEPARTMENTS.

## FARM.

H. C. Holmes, Superintendent.....	\$1,500.00	
Four Helpers.....	2,820.00—	\$ 4,320.00

## LAUNDRY.

E. M. Andrews, Superintendent.....	\$1,200.00	
About 16 Day Laborers.....(about)	5,200.00—	\$ 6,400.00

## MEDICAL (HOSPITAL).

Otto Ehlinger, Surgeon .....	\$3,000.00	
Two Nurses .....	1,215.00	
One Sanitary Helper.....	684.00	
One Janitor.....	225.00	
One Cook.....	180.00—	\$ 5,304.00

# SUBSISTENCE.

B. Sbisá, Supervisor.....	\$2,500.00
H. A. Widdecke, Commissary Manager.....	1,200.00
Cooks, Butchers, Bakers, Helpers (about).....	1,000.00
Waiters .....	(about) 7,000.00—\$21,700.00

# EXCHANGE STORE.

R. K. Chatham, Manager .....	\$1,500.00
Sundry Helpers.....	(about) 200.00—\$ 1,700.00

# CHEMICAL LABORATORIES.

G. S. Fraps, State Chemist.....	\$2,050.00
S. E. Asbury.....	1,600.00
T. L. Ogier, Assistant Chemist.....	1,300.00
L. A. Hudgins, Assistant Chemist.....	900.00
G. W. Roark, Assistant Chemist.....	800.00
E. R. Gilmore, Assistant Chemist.....	800.00
A. J. Weaver, Assistant Chemist.....	800.00
Vera Asbury, Stenographer.....	900.00
Sundry day laborers.....	(about) 350.00—\$ 9,500.00

Total .....\$49,624.00

# DEPARTMENTS DOING OUTSIDE WORK EXCLUSIVELY.

## AGRICULTURAL EXTENSION SERVICE.

Clarence Ousley, Director.....	\$4,000.00
Seth B. Holman, Secretary.....	1,500.00
J. C. Williams, Clerk.....	900.00
S. G. Rubinow, In charge Correspondence	
Courses .....	1,500.00
H. M. Elliott, Rural Organization Work.....	2,250.00
H. H. Williamson, Assistant.....	900.00
O. S. Gray, Clerk and Stenographer (part time) ..	300.00
G. A. Long, Stenographer (part time only).....	394.00
Five Field Agents at \$640.00.....	2,700.00
One Janitor.....	120.00—\$14,564.00

## STATE ENTOMOLOGIST.

Wilmon Newell, State Entomologist..	\$2,500.00
Less Eper. Sta. Salary.....	500.00—\$2,000.00
O. K. Courtney, Assistant.....	1,100.00
Elizabeth Walker, Stenographer .....	1,020.00
Janitor .....	450.00
Day laborers.....	(about) 300.00—\$ 4,870.00

# TEXAS AGRICULTURAL EXPERIMENT STATIONS\*\*—MAIN STATION.

B. Youngblood, Director.....	\$4,000.00	
Less salary from State Stations and		
Feed Control Departments.....	2,800.00—	\$1,200.00
A. B. Conner, Agronomist.....		1,320.00
C. A. Felker, Chief Clerk.....		560.00
A. S. Ware, Secretary.....		750.00
M. Francis, Veterinarian.....		500.00
H. Schmidt, Asst. Veterinarian.....		1,400.00
G. S. Fraps, Chemist.....		700.00
J. W. Chewning, Asst. Chemist.....		1,000.00
Frank Hodges, Asst. Chemist.....		1,000.00
R. H. Ridgell, Asst. Chemist.....		800.00
H. Ness, Horticulturist.....		1,800.00
J. C. Burns, Animal Husbandman.....		750.00
Wilmon Newell, Entomologist.....		500.00
F. B. Paddock, Asst. Entomologist.....		1,660.00
A. H. Leirigh, Asst. Agronomist.....		1,200.00
H. H. Jobson, Asst. Agronomist.....		600.00
Asst. Agronomist to be employed.....		1,080.00
F. H. Blodgett, Plant Pathologist.....		2,000.00
C. A. Case, Stenographer.....		480.00
Mattie Thomas, Stenographer.....		390.00
C. L. Durst, Mailing Clerk.....		300.00
One Janitor.....		225.00
Two Farm Hands.....		1,020.00
Total .....		—\$21,235.00

## FEED CONTROL DEPARTMENT.

B. Youngblood, Director.....	\$1,200.00	
C. A. Felker, Chief Clerk.....	560.00	
W. L. Boyett, State Feed Inspector.....	2,100.00	
J. H. Rogers, Deputy Inspector.....	1,500.00	
W. H. Wood, Deputy Inspector.....	1,200.00	
T. H. Wolters, Deputy Inspector.....	1,200.00	
J. M. Schadel, Deputy Inspector.....	960.00	
S. D. Pearce, Deputy Inspector.....	960.00	
James Sullivan, Deputy Inspector.....	1,200.00	
W. M. Wickes, Deputy Inspector.....	900.00	
Daisy Lee, Registration Clerk.....	900.00	
T. C. Stroeter, Stenographer.....	780.00	
C. L. Durst, Tag Clerk.....	600.00	
One Janitor.....	225.00	
Total .....		—\$14,285.00



# SUMMARY.

Adminstrative .....	\$ 30,290.00
Educational .....	143,130.00
Industrial Staff.....	27,820.00
Student Labor.....	10,000.00

Total .....	\$211,240.00
Self Supporting Departments.....	\$ 49,624.00

Total .....	\$260,864.00
-------------	--------------

Departments doing outside work Exclusively:

Extension Service .....	\$ 14,564.00
State Entomologist .....	4,870.00
Experiment Station .....	21,235.00
Feed Control Service.....	14,285.00

Total .....	54,924.00
-------------	-----------

Grand Total .....	\$315,808.00
-------------------	--------------

## BUDGET.

	1915-16.	1916-17.
Salaries -----	\$ 165,000	\$ 175,000
Administration-----		
President's Office -----	1,000	1,000
Dean of the College and Registrar's Office -----	750	750
Dean of Agriculture -----	500	500
Dean of Engineering -----	500	500
Fiscal Department -----	500	500
Departments-----		
Agricultural Education -----	2,500	2,500
Agronomy -----	7,500	7,500
Animal Husbandry -----	10,500	10,500
Architecture -----	1,000	1,000
Biology -----	2,500	2,500
Chemistry and Chemical Engineering -----	5,000	5,000
Civil Engineering -----	4,145	4,320
Highway Engineering -----	7,500	7,800
Engineering Experiment Station -----	1,500	1,500
Electrical Engineering -----	7,500	7,500
Forestry -----	2,500	2,500
Mechanical Engineering -----	7,500	7,500
Textile Engineering -----	625	625
Drawing -----	1,000	1,000
Dairy Husbandry -----	2,000	2,000
Economics -----	500	500
English -----	250	250
Entomology -----	5,500	5,500
History -----	250	250
Horticulture -----	3,500	3,500
Modern Languages -----	250	250
Physics -----	2,500	2,500
Poultry Husbandry -----	2,500	2,500
Veterinary Science -----	4,000	4,000
Library -----	12,000	12,000
Printing catalogues and other official documents -----	1,000	1,000
Board of Directors and auditing books -----	1,500	1,500
Physical Training and Athletic Grounds -----	3,600	1,800
Publicity -----	1,000	1,000
Student labor -----	12,000	12,000
Student Publications and Print Shop -----	800	800
Extension Service -----	52,130	65,945
Janitor Service, including material and supplies -----	5,000	5,000
Inside improvements and repairs to buildings -----	10,000	10,000
Labor on Grounds -----	3,240	3,240
Outside improvements, including walks, fences, shade trees, grading, etc. -----	12,000	10,000
General Contingent -----	5,000	5,000
Traveling Expense Fund -----	2,500	2,500
Steam Plant -----	35,000	40,000
Total -----	\$ 407,540	\$ 432,770
PERMANENT IMPROVEMENTS.		
Agricultural Building -----		\$ 150,000
Cottages -----	\$ 10,000	10,000
Veterinary Building -----	150,000	
College Auditorium -----		150,000
Hospital -----	50,000	
Mechanical Engineering Building and Equipment -----	75,000	15,000
Extension of Sewer System -----	5,000	5,000
Animal Husbandry Building -----	40,000	
Poultry Husbandry Building -----	5,000	5,000
Sheep Barn -----	1,500	
Hog Barn -----	1,500	
Dairy Barn -----	10,000	
To remodel Horse and Cattle Barn -----	2,000	
Greenhouse for Agronomy, Biology, Horticulture and Entomology -----	10,000	10,000
Completion of Steam Plant -----		30,000
Two new wells including water pipes and pumping machinery -----		15,000
Total -----	\$ 355,000	\$ 385,000
SUMMARY.		
Maintenance and Support -----	\$ 407,540	\$ 432,730
New Construction -----	355,000	385,000
Total -----	\$ 762,540	\$ 817,730
Total for Biennium -----		\$ 1,590,270

SUPPLEMENTARY APPROPRIATION FOR THE PRODUCTION AND DISTRIBUTION OF HOG CHOLERA SERUM.

Stable building, which should contain: Rooms for preparing and storing serum, inoculating and bleeding hogs, and feed; stalls for hogs, crematory, and all necessary equipment, such as apparatus, containers, chemicals, constant temperature, water and heat .....		\$ 15,000.00
One chief laborat ry man, per year.....	\$1,800.00	
One assistant laboratory man, per year.....	1,400.00	
Two field men at \$1,400.00 per year.....	2,800.00	
Two laborers at \$480.00 per year.....	960.00	
		<hr/>
		6,960.00
Operating fund .....		2,000.00
		<hr/>
Total . . . . .		\$ 23,960.00

ITEMIZED STATEMENT OF APPROPRIATIONS NEEDED FOR THE MAIN EXPERIMENT STATION.

Main Station (work under way):	Per Annum
Salaries . . . . .	\$ 10,000.00
General expenses, freight, express, office supplies, equipment, etc. . . . .	5,000.00
Main experiment farm .....	5,000.00
Veterinary investigation, Texas fever, infectious anaemia, hog cholera, etc. . . . .	3,000.00
Plant Pathology investigations .....	1,000.00
Entomology: for foul brood inspection work.....	10,000.00
Farm management investigations.....	3,000.00
New Work:	
For soil survey: to supplement an appropriation of ten thousand dollars per annum from the United States Department of Agriculture, for co-operative soil survey work in Texas...	10,000.00
	<hr/>
Total . . . . .	\$ 47,000.00









T 31 C  
1914/16

TWENTIETH BIENNIAL REPORT  
of the  
UNIVERSITY OF ILLINOIS LIBRARY  
**Agricultural and Mechanical College**  
of Texas

---

**For the Fiscal Years Ending**  
**August 31, 1915, and August 31, 1916**



**Omitting Statistical Data and Appendices**

---





**TWENTIETH BIENNIAL REPORT**  
of the  
**Agricultural and Mechanical College**  
**of Texas**

---

**For the Fiscal Years Ending**  
**August 31, 1915, and August 31, 1916**



**Omitting Statistical Data and Appendices**



## LETTER OF TRANSMITTAL.

*To His Excellency James E. Ferguson,  
Governor of Texas,  
Austin, Texas.*

DEAR SIR: In complying with the law I submit herewith the following report of the Agricultural and Mechanical College of Texas for the biennium ending August 31, 1916. The progress and needs of the institution during that period are set forth in detail in the report of the President of the College, the Deans and Directors and other officers, which is herewith transmitted and made a part of the report of the directors.

It affords me great satisfaction on behalf of the Board of Directors to advise you that the College is in a very prosperous and satisfactory condition. I feel justified in saying that the period covered by this report has probably been the most successful and satisfactory from every standpoint in the history of the institution. There is harmony and co-operation in all the relations of the College. The relations between the members of the Board have been harmonious. There has been the most cordial co-operation between the President of the College and the Board of Directors. Harmonious relations appear to exist between officers of the College and the Faculty. The students are working in good spirit and in sympathetic relation with the Faculty. Loyalty seem to characterize officers, instructors, and students alike.

The business affairs of the College are in splendid condition, as can be seen from the reports of the Auditors, which are herewith made a part of the biennial report of the Board of Directors. On the authority of the Board of Directors, I employed the Alamo Auditing Company, of San Antonio, to audit the books for the fiscal year 1914-15 and the Commercial Auditing Company of Dallas for 1915-16. Both of these companies made a very careful and satisfactory audit of every department of the College, and they report that there are no deficiencies and that the affairs of the College are conducted in a business like and satisfactory manner. I take the liberty of quoting the concluding paragraph of the report of the Commercial Auditing Company, which has just been completed:

"In conclusion, we wish to say that we were much pleased with the general manner in which all departments were conducted. No complaints or criticisms were heard from any employe or students. The institution is well controlled and well guided and speaks much for the President and the Administrative Officials. Harmony seems to be the prevalent note."

The report of President W. B. Bizzell gives in detail the record of construction at the College during the biennium. The Board of Directors has felt very keenly the responsibility of making the wisest possible use of the funds that were liberally provided by you and the Thirty-fourth Legislature. Our greatest difficulty has been met

in the erection of new buildings. All estimates submitted to the Thirty-fourth Legislature were based upon the value of constructive material in 1914. As you are fully aware the prices of structural material have increased from 10 per cent. to 100 per cent. since that date. This has presented a very serious problem to the Board, but I am convinced that we have received good values for every building that has been erected or that is now in course of construction at the College.

Your attention is directed to the discussion of the needs of the College in President Bizzell's report. \* The Board has given careful consideration to every item that has been included in the budget, which is submitted herewith, and *we are convinced that every item is urgently needed and the amount asked for is reasonable.* I especially call your attention to the need of an Agricultural Building, a Mechanical Engineering Building and Shops, Physics Building, dormitories and cottages. Some of the minor, but none the less imperative, needs are those for *remodeling the old chapel for library purposes, the extension of the sewerage system, water mains and tunnels, a central gas plant and poultry husbandry buildings.* The College cannot maintain its efficiency and provide accommodations for the rapidly increasing student body unless these needs are met by the Thirty-fifth Legislature.

Your attention is called also to the reports of the Director of the Extension Service and of the Director of the Experiment Station. These divisions of the College service have made commendable progress and the work they have accomplished, indicated in these reports, is highly gratifying.

The report of the State Forester is also made a part of this report by virtue of the fact that the law establishing the office of State Forester made it the duty of the Board of Directors of the College to appoint the State Forester. The results obtained fully justify the wisdom of the Legislature in the passage of this law.

In conclusion permit me, on behalf of the Board, to express our appreciation for the co-operation that you have given us and the President of the College in the responsible duties of directing the affairs of this great institution. We bespeak your co-operation in presenting to the Legislature the needs of the great institution which we represent, and assure you in advance that we will put forth our best efforts to justify the confidence you impose and the assistance that you render.

Respectfully submitted,

JNO. I. GUION,  
President Board of Directors.



## SUMMARY OF BIENNIAL REPORT.\*

1. The total *attendance* for 1914-15 was 1218, and 1416 for 1915-16. The increase for the regular session was 16 per cent.

2. *Degrees*. The College conferred 92 degrees in 1914-15 and 120 degrees in 1915-16, as follows:

	1914-15	1915-16
B. S. in Agriculture.....	52	63
B. S. in Engineering.....	39	54
Advance degrees.....	1	3

3. The *teaching staff* includes 27 full professors, 18 associate professors, 24 assistant professors, 29 instructors, and 2 assistant instructors; a total of 100.

4. The *estimated value of the College plant* is \$1,859,661.37, distributed as follows:

Lands .....	\$ 148,925.00
Buildings .....	1,212,010.62
Tunnels, sidewalks, fences, etc.....	65,570.09
Live Stock.....	40,274.10
Farm machinery, laboratory and library equipment, etc.....	392,881.56
	\$1,859,661.37

---

\*The complete Biennial Report, which contains statistical data of all schools and departments, and the financial statements of the auditors, will be sent on request.

## REPORT OF THE PRESIDENT OF THE COLLEGE.

*To the President and Members of the Board of Directors of the Agricultural and Mechanical College of Texas.*

GENTLEMEN: I have the honor to submit herewith the following report for the years 1914-15 and 1915-16, together with certain recommendations concerning the future policies of the institution and a report concerning the needs of the College for the years 1917-18 and 1918-19, to which I invite your most careful attention.

I am also submitting the reports of the Deans and other officers of the College, which are included in, and made a part of, the Twentieth Biennial Report of the institution. A careful reading of the various reports included herein will indicate the scope of the activities of the College and reveal the condition of the respective divisions of the College work.

### I.

#### THE RECORD OF THE BIENNIUM.

The period covered by this report has been one of continuous progress and development. The increase in attendance as shown by the respective reports of the Deans is highly gratifying and supplies the best possible evidence that the curricula are meeting the requirements of the State and the advantages that the College offer are appreciated. The student body has manifested an increasing spirit of co-operation with College authorities in the maintenance of discipline. The officers and instructors have manifested a commendable spirit of co-operation with each other and with the governing authorities of the institution. Present conditions generally justify the belief that the College is entering upon the most successful and progressive era of its history.

#### RESIGNATIONS.

The following professors and instructors have resigned within the period covered by this report:

Professor W. Newell, Entomologist to the Experiment Station, State Entomologist and Professor of Entomology, resigned to accept the position of State Plant Commissioner of Florida.

Mr. J. E. Abshire, Assistant Professor of History, who was granted leave of absence by the Board for the scholastic year 1914-15 for the purpose of completing his work for his doctor's degree at Princeton, later tendered his resignation in order to accept another position.

Mr. W. S. Beckwith, who was employed as instructor in Mathematics for the year 1915-16 during the absence of Mr. I. C. Nichols, who was granted a leave of absence in order to complete his work for the Ph. D. degree at the University of Michigan, resigned at the close of last session.

Mr. H. M. Brundrette, Instructor in Entomology, resigned on June 12, 1916.

Lieut. James R. Hill, for the past two years Commandant and Professor of Military Science and Tactics, was relieved September 18, 1916, by the War Department as the period of his detached service had expired.

Dr. A. H. Hutchinson, Assistant Professor of Biology, resigned June 12, 1916, in order to accept the Professorship of Biology in the University of British Columbia.

Mr. E. W. Kellogg, Assistant Professor of Electrical Engineering, resigned at the close of the session, June 13, 1916.

Mr. J. C. Olsen, Associate Professor of Farm Terracing, was transferred at the beginning of the current year to the Extension Department, where he will devote his entire time to terracing.

Mr. F. W. Redlich, instructor in Drawing, resigned in the late Summer of 1916, to accept the professorship of Architecture in Oklahoma Agricultural and Mechanical College.

Mr. S. G. Rubinow, Assistant Professor of Agricultural Education, resigned on September 30, 1916, to accept the position of Assistant Boys' Club Agent, North Carolina State College of Agriculture and Mechanic Arts.

Professor W. T. Wright, head of the Department of Physics, resigned on June 12, 1916, and is now pursuing graduate work in the University of Michigan.

Mr. Robin Beach, Assistant Professor of Electrical Engineering, resigned January 1, 1917, to accept the position of Professor of Electrical Engineering at Norwich University.

#### CHANGES IN RANK.

The following promotions and changes in rank have been approved by the Board during the period covered by this report:

##### *Action of the Board July 6, 1915:*

*E. C. Gee.* From Associate Professor (Department of Agronomy) to Professor of Agricultural Engineering.

*R. P. Marsteller.* (Department of Veterinary Science.) From Associate Professor to Professor.

*A. C. Love.* From Associate Professor of Civil Engineering to Professor of Railroad Engineering.

*C. A. Wood.* From Assistant Professor of Agronomy to Associate Professor of Agronomy.

*F. W. Hensel.* From Assistant Professor to Associate Professor of Horticulture.

*D. C. Miller.* From Assistant Professor to Associate Professor of Civil Engineering.

*O. B. Wooten.* From Assistant Professor to Associate Professor of Electrical Engineering.

*S. W. Bilsing.* From Assistant Professor to Associate Professor of Entomology and Acting Professor of Entomology.

- Robin Beach.* \* From Instructor to Assistant Professor of Electrical Engineering.  
*W. T. Magee.* From Instructor to Assistant Professor of Animal Husbandry.  
*H. Cassiday.* From Instructor to Assistant Professor of Biology.  
*J. A. Clutter.* From Instructor to Assistant Professor of Dairy Husbandry.

*Board Action June 13, 1916:*

- R. D. Brackett.* From Assistant Professor to Associate Professor of English.  
*C. S. Tatum.* From Assistant Professor to Associate Professor of Textile Engineering.  
*P. G. Gunter.* From Instructor to Assistant Professor of English.  
*L. L. Click.* From Instructor to Assistant Professor of English.  
*J. D. Bond.* From Instructor to Assistant Professor of Mathematics.

FACULTY APPOINTMENTS.

The following appointments to positions on the teaching staff have been authorized by the Board:

Dr. F. B. Clark, A. B. and M. A. Richmond College and Ph. D. from John Hopkins University, Professor of Economics, to succeed Dr. T. L. Kibler, resigned.

Dr. O. W. Silvey, A. B. and A. M. University of Indiana and Ph. D. University of Chicago, Professor of Physics, to succeed Professor W. T. Wright, resigned.

Captain C. H. Muller, 11th Cavalry, United States Army, Commandant and Professor of Military Science, detailed by the War Department as Commandant and Professor of Military Science and Tactics.

Dr. D. J. Brown, B. A. and M. A. University of Texas and Ph. D. University of Chicago, Assistant Professor of Chemistry and Chemical Engineering.

Dr. A. B. Ray, B. A. and M. A. Wake Forest College and Ph. D. Cornell University, Associate Professor of Chemistry and Chemical Engineering.

Dr. C. H. Farr, B. A. and M. S. State University of Iowa and Ph. D. Columbia University, Assistant Professor of Biology.

Mr. H. B. Krausz, Instructor in Forestry.

Mr. W. L. Stangel, B. S. Agricultural and Mechanical College of Texas, and A. M. University of Missouri, Instructor in Animal Husbandry.

Mr. R. M. Green, B. S. in Civil Engineering from the University of Nebraska and M. S. in Highway Engineering Columbia University, Assistant Professor of Highway Engineering.

Dr. C. C. Whitney, D. V. M. George Washington University and V. M. D. University of Pennsylvania, Assistant Professor of Veterinary Medicine.

Dr. L. H. Wright, D. V. M. Cornell University, Assistant Professor of Veterinary Medicine.



Mr. T. F. Mayo, B. A. University of Mississippi and B. A. University of Oxford, Assistant Professor of English.

Mr. J. C. Ripperton, M. S. Kansas State Agricultural College, Instructor in Chemistry.

Mr. W. G. James, B. S. in Electrical Engineering, Kansas State Agricultural College, Assistant Professor of Electrical Engineering.

Mr. H. F. Page, B. A. and M. A. Wake Forest College and M. A. Harvard University, Assistant Professor of English.

Mr. H. T. Dysland, Assistant Professor of Architecture.

Mr. H. C. Yingling, M. S. Ohio State University, Instructor in Entomology.

Mr. E. R. Bowersox, B. S. University of Iowa, Instructor in Mechanical Engineering.

Mr. E. Matthews, B. S. in Architecture University of Pennsylvania, Instructor in Drawing.

Mr. W. A. Broyles, A. B. University of Indiana and M. A. University of Wisconsin, Assistant Professor of Agricultural Education.

Lieut. Wm. H. H. Morris, Jr., 9th Infantry, United States Army, detailed by the War Department as Assistant Commandant and Assistant Professor of Military Science and Tactics.

#### PERMANENT IMPROVEMENTS.

Many important improvements have been made within the period covered by this report. Your attention is directed to the report of the Superintendent of Buildings and Grounds for a list of the outside improvements and repairs. The concrete walks, paved streets and inside improvements have greatly added to the comfort and happiness of the student body.

*Hospital Building:* The Legislature provided \$50,000.00 for a Hospital and the building was completed September 1, 1916. This building is three stories high including a basement and the plan is designed after the well known "H" type, which is conceded to be the best adapted for hospital purposes. The East and West wings are approximately 30x82 feet and the central or administrative section 57x36 feet, not including a 16x26 foot porch. The wings contain wards, toilet and bathing facilities, diet kitchen, private rooms and quarters for nurses and attendants. The central portion is designed to accommodate the administrative offices, dispensary, laboratory, examination rooms, operating suite, stairway, elevator shaft and a large dining room. The upper floor has been set apart for the isolation and contagious wards and private rooms. The equipment in this buildings is modern in every respect. The very latest and most improved hospital furniture and devices have been provided. The building supplies one of the most imperative needs of the college and it is the purpose of the College authorities to make it a place not only for the care of sick students, but rather a hall of health where students may be examined for physical defects and where wholesome instruction may be given in sanitary and hygienic knowledge.

*Animal Husbandry Building:* The Legislature provided \$40,000 for the erection of an Animal Husbandry Building. This building is

100 feet wide and 200 feet long, the Arena 60 feet wide and 160 feet long with circular ends. The seating capacity for stock judging is about 1,200 and this may be increased for more formal occasions by seating the Arena to approximately 2,500. For purposes of instruction the Arena may be divided into three separate parts by the use of canvas curtains which will enable instruction to be given to three sections at the same time. The entire Arena and seating section is spanned by steel trusses to support a tile roof. The portion of the building below the seating section is utilized for class rooms, offices, toilet facilities, boxstalls, etc. This building is one of the best of its kind in the entire country and is a credit to the State.

*Dairy Barn:* An appropriation of \$10,000.00 was provided by the Thirty-fourth Legislature for a modern fireproof dairy barn. It has been the plan of the College authorities for several years to transfer the dairy herd from the east side to the west side of the railroads in order to provide additional room and accommodations for the Animal Husbandry department and the Veterinary department, and at the same time utilize several hundred acres of land belonging to the State for dairy farm purposes. The appropriation for the Dairy Barn enabled the College authorities to carry out this plan. The milking and feeding room of the new dairy barn is 190x36 feet with concrete floors and roof and tile wall construction with accommodation for 102 cows at one time. This large room has no inside columns or piers, the roof being carried from wall to wall by reinforced concrete girders. The building is equipped with the most sanitary and modern conveniences, the concrete floors have built-in feed mangers and drainage gutters, arranged to be flooded and flushed out after each milking and feeding. Attached to the milking rooms at the rear center is a feed storage room, lavatory facilities for employes and business office. This section of the building is 32x40 feet. A detached milk room some 20 feet south is connected with the milking room by a screened covered passage. This room is used for separating and cooling. All openings and ventilators are screened. The building is of fire proof construction throughout and well adapted to the purposes for which it is designed.

*Auditorium:* The Thirty-fourth Legislature met one of the most pressing needs of the college by providing \$100,000.00 for an auditorium and the contract for this building was let on November 29, 1916. The building is 93x180 feet and is designed to provide a seating capacity of approximately 2,500 people. The building is entirely fireproof, being constructed of gray face brick and architectural terra cotta. All interior construction is of reinforced concrete and all walls of brick or hollow tile. The exterior of this building will be of dignified Renaissance design, the main facade being treated with a hexastyle Ionic portico, the columns will be of architectural terra cotta richly moulded, and the entire facade behind the columns being of terra cotta. The main auditorium is 135x78 feet, and contains a balcony well arranged with reference to the stage. The stage is 42x27 feet and the ornamental details will present a pleasing appearance. Adequate dressing room facilities have been provided

with convenient entrances and exits. The contractors have agreed to complete this building before the opening of the session 1917.

*Experiment Station Building:* Funds for an Experiment Station Building have been derived from the accumulated surplus of two years from the Feed Control Service. Under existing law the surplus from feed control funds are subject to the disposition of the Board for the maintenance of the College. This law is administered by the Director of the Texas Agricultural Experiment Station. For sometime this division of the College work has been greatly hampered because of insufficient room and a large part of the difficulty has grown out of the necessity of providing laboratory facilities and administrative offices for carrying on the work connected with the feed control. It seemed appropriate, therefore, to use the surplus from this source to provide a building for the use of this department. The Board of Directors at a meeting held in Dallas on October 28, 1916, voted to appropriate the surplus, not to exceed \$75,000.00 for the erection of an Agricultural Experiment Station Building at the Agricultural and Mechanical College. The contract for this building was let on November 29, 1916. It consists of three stories and a basement, the dimensions of which are approximately 62x122 feet and entirely of fire-proof construction. It provides ample office and laboratory facilities for the department. The building is to be completed and ready for occupancy by July 1, 1917.

*Serum Laboratory:* One of the important activities of the College is that of supplying cholera serum for the hog raisers of the State. The demand for this serum has been increasing rapidly for the past three or four years. At the earnest solicitation of the Swine Raisers' Association of Texas the Thirty-fourth Legislature provided \$15,000.00 for a serum laboratory building to be located at the College. The work of preparing this serum is scientific and requires a building well adapted to the purpose. The requirements of a plant for successful operation call for a very expensive type of building for the primary consideration of light, ventilation and sanitation. The building now under construction calls for a one-story brick and concrete structure, enclosing on three sides a court, which gives convenient access to all parts of the plant and from which court all animals used are handled. The wings of the building contain preparation rooms, where the animals are prepared for the expert. Sterilizing rooms are also provided in the wings of the building. The wings of the building contain bleeding or hyperimmunizing rooms and the windows of these rooms are screened and made practically dust proof. The serum building has been provided with a refrigerator for the storage of the finished product and convenient packing and shipping room, and adequate facilities for office, laboratory, shower baths and lavatories have also been provided.

The plans (but not the contract) include a cold storage plant, including a meat dressing room, a chill room, and a basement beneath for the proper housing of refrigerator machinery. The amount of the appropriation did not permit the erection of this part of the building. When this plant is completed Texas will have a modern and most complete plant for the production of hog cholera serum.



*Veterinary Medicine Building:* The Legislature provided \$100,000.00 for a Veterinary Medicine Building, but the contract for the erection of this building has not been let. The Architectural department of the College has given several months study to the plans and specifications for this building, which is to house the new department of Veterinary Medicine. This building is four stories, including a basement and is fire-proof throughout. All floors of the entire building are of concrete and steel tile construction, having a Thermowax finish. All elevated doors and doors from smoke-proof tower are fire-proof. The stairways are of reinforced concrete construction. The building is 157x63 feet. The first floor will contain the office of the Dean, and a business office, containing a fire-proof vault and library, three offices for professors, two laboratories and a large museum. The Amphitheater, which is at the rear, has a seating capacity of approximately 225 students. The second floor contains two large laboratories, two class rooms, two offices and one specimen room besides ample space for storage and supplies. The third floor contains three laboratories, four offices, five special laboratories for instructors and a Post Mortem room. The basement contains two large supply and work rooms, refrigerator room, storage room, and a freight elevator with dummy waiter service is supplied to all floors. This building is of Romanesque style architecture, which is the style adopted for the entire agricultural group to be erected around the east quadrangle.

*Power House:* Although practically all the buildings on the campus are supplied with light, heat and power from a central plant little attention has been given to the proper equipment of this important building. High power boilers and expensive electric and pumping machinery have been housed in a cheap galvanized building. The last Legislature appropriated \$30,000.00 for a new power house. Unfortunately it is now found that the amount appropriated is not sufficient to provide a house sufficiently large to meet the requirements for the present and future needs of the College. The boiler house that has been planned is 83x105 feet, the floor line being 6 feet below the finished grade line outside the building and this is enclosed with a mass concrete wall extending four feet above the grade line. Above the concrete wall a solid brick wall extends to the top.

The roof is to be of cement tile and carried on steel trusses across the 83 foot span. The engine room, 98x68 feet and two stories in height is designed to cover the present machinery floor. It is estimated that the present appropriation will be required to construct that part of the building. An additional appropriation will be needed to complete the building according to plans and specifications.

It has been the desire of the College authorities to adapt each building as nearly as possible to the object that it is designed to serve. The architects have prepared the plans and specifications with the greatest possible care. One serious difficulty has confronted us in carrying out our building program. The estimates submitted to the Legislature were based upon prices of material in 1914. There has been, as all know, a rapid increase in the price of structural material since that time and this has made it exceedingly difficult to secure these



buildings within the appropriation provided by the Legislature. I am convinced, however, that the State has received good values for the outlay of money and the buildings will supply their respective needs at the College for many years to come.

## II.

### STATE AND NATIONAL LEGISLATION.

The record of legislation by the Thirty-fourth Legislature of Texas and by the Congress of the United States reveals a commendable interest in the college and an encouraging appreciation of the service the institution is rendering to the people.

#### LEGISLATIVE ENACTMENTS BY THE THIRTY-FOURTH LEGISLATURE.

##### 1. *Relating to the manner of approving vouchers.*

This law provides that all expenditures for the Agricultural and Mechanical College of Texas may be made by order of the Board of Directors of said College, to be paid on warrants from the Comptroller on vouchers approved by the President of said board, *or by some other officer or officers of the College*, designated by him in writing to the Comptroller. The passage of this bill had the effect of relieving the president of the Board of a great amount of routine work and in greatly expediting the business affairs of the College.

##### 2. *Providing for the issuance and retirement of certain State bonds in connection with the permanent endowment of the College.*

This was one of the most important pieces of legislation passed by the Thirty-fourth Legislature in the interest of the College. Several years ago in violation of the Federal Land-grant Act the interest on the College endowment was reduced from 5 per cent. to 3 per cent. When the authorities at Washington learned of this action a protest was promptly made and for a time the College endowment was endangered. Several efforts were made to correct this mistake but nothing was done until the Thirty-fourth Legislature passed the Act providing for the cancellation of the present 3 per cent. bonds and providing for the sale of new bonds bearing 5 per cent. interest. The Legislature in the same Act appropriated \$24,358.33 for the maintenance and support of the College, this amount being the sum necessary to make up the interest deficit due to the investment of the bonds at 3 per cent. instead of 5 per cent. The passage of this Act has enabled the College authorities to adjust the difficulty with the Federal Government and our endowment is now on a secure basis.

Your attention is called, however, to the fact that the Legislature failed to appropriate the additional 2 per cent. for 1915-16 and 1916-17. I have had the assurance of the State Treasurer that he would request the Thirty-fifth Legislature to appropriate this sum for the maintenance of the College for these two years.

3. *Office of State Forester.*

The Thirty-fourth Legislature created the office of State Forester and placed upon the Board of Directors of the College the responsibility of appointing this officer. The importance of the office and the significance of the work caused this responsibility to be felt very keenly by the governing authorities of the College. After several months of careful investigation Professor J. H. Foster, Professor of Forestry at the New Hampshire College of Agriculture and Mechanic Arts, Durham, N. H., and a graduate of the School of Forestry of Yale University, was secured. Professor Foster assumed his duties in September 1915, and the work he has accomplished has justified the wisdom of the Legislature in the passage of this Act, and the Board in the appointment of this officer to fill the position.

4. *Proposed Amendment to the State Constitution providing for the establishing and separate maintenance of the University of Texas and the Agricultural and Mechanical College.*

This proposed amendment, better known as the "Sackett Resolution" was one of the most important matters considered by the Thirty-fourth Legislature. The proposed amendment attempted to settle finally the status of the Agricultural and Mechanical College with reference to the University of Texas. The resolution was submitted to the electors of this State for adoption or rejection at an election to be held on the fourth Saturday in July 1915, along with a number of other resolutions. No serious or concerted opposition developed to the resolution so far as I am aware, but serious opposition developed to other proposed amendments that were voted upon at the same time and this amendment was defeated along with others at the election in July. Three reasons may be assigned for the defeat of this amendment: (a) On account of the concerted opposition to other proposed amendments, which caused many to vote against all of them. (b) The growing tendency of the people of this State to not further amend the present Constitution. (c) The inertia and indifference of many people to constitutional amendments. I believe, however, that this amendment is meritorious and its passage would contribute to the efficiency of both the University of Texas and the Agricultural and Mechanical College. I have no doubt that if an amendment were proposed embodying the features of this resolution and submitted at some time when no other controversial issue was to be considered that it would receive the indorsement and approval of the people of the State.

5. *Resolution accepting the Benefits of the Smith-Lever Act.*

In my report two years ago I called your attention to the passage of what is known as the Smith-Lever Law by Congress, which provides for co-operative extension work under the joint direction of the United States Department of Agriculture and the Agricultural and Mechanical College. Section three of this Act provides that the benefits provided by the Federal Government shall accrue to each State that shall by act of its Legislature consent to the provisions of this Act. The House of Representatives of the Thirty-fourth Legislature

complied with this formality on January 22, 1915, and the Senate concurred on January 27, 1915. The resolution also instructed the Board of Directors of the Agricultural and Mechanical College to receive such grants of money made by Acts of Congress providing for the co-operation between the Agricultural and Mechanical College and the United States Department of Agriculture in the promotion of extension work. The Legislature complied with its part of the agreement by providing in the appropriation bill for a sum equal to that appropriated by the Federal Government for the purpose of the Act.

#### FEDERAL LEGISLATION.

The passage of the National Extension Act seems to have stimulated an interest in the work of the agricultural colleges of the country and directed attention to the possibilities of these institutions to serve in a larger way not only their respective states but the nation as a whole. The educational provisions of the National Defense Act is an illustration of this tendency.

##### 1. *Educational Provisions of this Act.*

One of the effects of the European War has been to direct attention in this country to the problem of national defense. It seems but natural that Congress in the consideration of this important question should think of the possibilities of the land-grant colleges where military instruction is already being given as one of the agencies through which national plans for increasing the military efficiency of the nation could be carried out. As soon as Congress began to consider this question several bills affecting the land-grant colleges were introduced in Congress. Among the earliest was that of Mr. McKellar (H. B. No. 11872), which would have had the effect of making West Points out of the land-grant colleges. This bill did not meet with favor either in Congress or with the land-grant college authorities. Senator McCumber introduced a bill in the Senate (Senate bill No. 3062), which was less drastic than the McKellar bill, but this bill was defeated because it attempted to make use of abandoned or unoccupied military posts for training camps, where high school students should be given military training and instruction in the Summer. The discussion of these bills resulted in a better understanding and appreciation of the problem of educational military training. The result was that identical bills were introduced in the United States Senate (S-3946), by Senator Pomerene of Ohio, and in the House of Representatives (H. R.-10845), by Representative Gard of Ohio. These bills provided for the establishment of a Reserve Officers Training Corps, which included the following features:

(1) That the President of the United States shall have authority to establish and maintain in civil educational institutions a Reserve Officers Training Corps which shall consist of a Senior Division and a Junior Division. The Senior Division can be established only in institutions which require four years of collegiate study for a degree and which will comply with the conditions laid down in the Bill. The



Junior Division may be established in all other educational institutions which will comply with the specified requirements.

(2) The work of the Senior Division requires the devotion to it of an average of at least three hours per week (two hours of drill and one of theory) during two academic years. The men undergoing this training will be supplied by the Government with their uniforms. A selected number of those who have completed the work of the Senior Division may take advanced training. This advanced training contemplates the devotion of an average of at least five hours per week (two hours of drill and three hours of theory) for two additional academic years. The men taking it will have from the government, in addition to their uniforms and expenses in connection with training camps, a monthly payment equivalent to the cost of the army ration.

(3) That the President of the United States is authorized to detail such number of enlisted men as may be necessary in connection with the military education and training of the members of the Reserve Officers Training Corps.

(4) That the Secretary of War shall have the authority to prescribe standard courses of theoretical and practical military training for the units of the Reserve Officers Training Corps; and to establish camps in which further practical instruction of the members of the Training Corps shall be given. General Orders No. 49 issued by the War Department on September 20, 1916, comply with this provision of the law.

(5) That the President shall have authority to appoint as a Reserve Officer any one who volunteers for such appointment who has taken the training of the Senior Division, and has otherwise fulfilled the requirements laid down. And the President may appoint as a temporary Second Lieutenant in the Regular Army any Reserve Officer appointed under the provisions of the Act.

When Congress came to consider the National Defense Act the Pomerene-Gard features were incorporated almost without change in the Chamberlain Bill (Senate Bill 4849) and Sections 40 to 53 inclusive of this Act include the provisions referred to above. This bill was finally passed by Congress and approved by the President on June 3, 1916.

On October 3, 1916, application was made to the War Department for permission to establish at this College a Senior Division of the Reserve Officers Training Corps, and the application was approved October 19, 1916. Under the terms of this application the College authorities have agreed to establish and maintain a two-year compulsory course of military training as a minimum for its physically fit male students, which course when entered upon by any student shall, as regards such student, be a prerequisite for graduation; to allot a minimum of an average of three hours per week per academic year to military training and instruction during the first two academic years and to arrange for five hours per week during the balance of such student's course, and to use their endeavors to promote and further the objects for which the training corps is organized.

On December 18, 1916, the Administrative Council, consisting of



the President of the College and the Deans, submitted the following report to the Faculty with reference to the necessary re-adjustment to carry out the above provisions:

“To the Faculty:

The Administrative Council believes that the following adjustment will meet the requirements of the Morrill Act and of the National Defense Act:

(1) Require of all freshmen and all sophomores and all two-year students Military Science, 1 hour a week theory, each term.

(2) Require of juniors and seniors who continue in the R. O. T. C. Military Science 3 hours theory, each term.

(3) Require of all students drill 2 hours a week, each term.

(4) Strike out all existing courses in Military Science.

The Council has examined the curricula and has found that it is entirely feasible to modify all of them in such a manner as to make them conform to the proposed re-adjustment of the courses in Military Science. This, of course, can not be done without some important changes in some of the curricula.

The main changes will be:

1. The addition of 1 hour theory, Military Science, in the freshman and sophomore years and in both years of the Short Courses, in most cases reducing the time for some practice subject.

2. The reduction of drill to two hours.

3. Juniors and seniors who continue in the R. O. T. C. will have to take Military Science, theory, 3 hours in the place of some other subject, generally an elective subject.

The Council recommends:

1. That the Faculty approve the general plan as outlined above for adapting existing curricula to the requirements of the R. O. T. C.

2. That the several Committees on Curricula be requested to report December 20, to their respective faculties the necessary modifications of the curricula, with the view of making them effective at the beginning of the second term of the current session.

3. That for the current session, there be no change in the hour for drill, and that the question of changing the drill hour for next session be referred to the administrative council, the chairman of the schedule committee, and the commandant for investigation and report.”

The War Department has already detailed one additional commissioned officer and three sergeants (retired) and application has been made for two additional commissioned officers and three non-commissioned officers. The College is really entitled to twelve non-commissioned officers, but as the War Department requires the College to provide quarters for the officers detailed for instruction purposes, we are unable to secure the full benefits of this provision as funds have not been available to provide adequate house facilities for this number of additional men.

I am convinced that the benefits provided by the Federal Government under the National Defense Act will greatly increase the attendance at this College. The freshmen and sophomore students have

uniforms supplied to them by the Federal Government and the juniors and seniors who continue in the Reserve Officers Training Corps receive in addition to the uniforms, commutation of rations amounting to \$8.00 or \$9.00 per month, and all expenses, while in attendance at, and from training camps maintained at the College for four weeks during each Summer.

Congress, as yet, has not provided for these benefits for the current session, but it is contemplated that Congress now in session will provide for commutation of rations and I have been assured that uniforms will be available on and after July 1, 1917, the date of the beginning of the Federal fiscal year.

## 2. *Engineering Experiment Station Bill.*

As you are fully aware the Fourth section of the Land-Grant Act of 1862 provided that an Annual Report "Shall be made regarding the progress of each college, recording any improvements and experiments made, with their costs and results, and such other matters, including state industrial and economic statistics, as may be supposed useful." The research side of the work was much neglected in the land-grant colleges until the passage of the Hatch Agricultural Experiment Station Act in 1887. The Adams Act providing for an increase of \$5,000.00 for the first year, 1906, increasing this amount by \$2,000.00 annually until the total sum reached \$15,000.00, was the direct result of the benefits that the first Agricultural Experiment Station Act revealed. Agricultural research has become a very important part of land-grant college work.

Logically Congress should have provided at the time of the passage of the Hatch Act for Engineering Experiment Stations as well as Agricultural, as a knowledge of the mechanic arts was an important provision of the Morrill Act as instruction in Agriculture and the relations of mechanic arts to agriculture should have resulted in their developing together.

The need of Engineering Experiment Stations have become increasingly apparent, especially at the land-grant colleges which have a most intimate relation to our productive industries. The Association of American Agricultural Colleges and Experiment Stations has repeatedly indorsed the proposal that the Government aid for experimentation in engineering problems should be provided at land-grant institutions. Several of these institutions have been so impressed with the importance and necessity of engineering research that Engineering Experiment Stations have been established without waiting for national aid. The University of Illinois and the Iowa State College were the first to take such action as early as 1903. In Iowa and Ohio these stations were established by the State Legislatures. Wisconsin, Kansas, Illinois, Missouri, the State College of Pennsylvania and the Agricultural and Mechanical College of Texas have organized Engineering Experiment Stations under the authority of their governing boards. The organization of the land-grant college engineering association in 1913 has had the effect of directing national attention to the possibilities of engineering experimentation. As a result of the efforts of this organization and others interested in

the movement Senator Newlands of Nevada introduced an engineering experiment station bill (Senate Bill 4874), last March in the United States Senate. The bill provides for an Engineering Experiment Station at the land-grant college in each State or territory and carries a Federal appropriation of \$15,000.00 per station annually to be expended under the direction of the Secretary of the Interior. The bill was referred to the Committee on Agriculture and Forestry. It has been actively supported by the Executive Committee of the Land-Grant College Engineering Association and the Presidents of the land-grant colleges. Some opposition to the Newlands Bill has developed from a few State Universities, which are not land-grant institutions, because the appropriations for their state would not go to them, but I am convinced that the bill wisely designates the land-grant colleges as the agencies through which to administer these funds, and I earnestly recommend to the members of the Board their loyal support and influence in the promotion of the passage of this legislation.

It is easy to realize from a summary of the legislation referred to above that the land-grant colleges are developing a great national system of education. This does not mean they are becoming less effective as State institutions. In fact the co-ordination of their effort means the extension and enlargement of their possibilities for the promotion of industrial education in the respective states in which they are located.

### III.

#### PROBLEMS AND POLICIES.

A growing institution is constantly confronted with the problem of adjusting its facilities to meet the needs resulting from increased attendance and multiplication of departments. The relation of the Agricultural and Mechanical College to the productive life of the State requires a constant readjustment of its functional activities to the needs it is called upon to serve. The development of the Extension Service and the establishment of the School of Veterinary Medicine illustrate the efforts of the governing authorities of the College to meet effectively the demands that the State is making upon the College.

#### THE SCHOOL OF VETERINARY MEDICINE.

For several years the Board of Directors has had in mind the establishing of a School of Veterinary Medicine in recognition of the great importance of the livestock industry of this State, but it was impossible to carry out this plan because of inadequate funds and equipment. The Thirty-fourth Legislature, however, appropriated \$100,000 for a veterinary medicine building. This enabled the board to take the initial step in carrying out this plan. At a meeting held in Austin on April 10, 1916, the Board passed the following resolutions creating this school and making Dr. Mark Francis its dean:



"Whereas, there is a great need in this State for trained veterinarians to conserve the livestock interests, and,

"Whereas, the Legislature has passed, and the Governor approved, an appropriation of \$100,000 for a veterinary medicine building, therefore,

"Be it resolved by the board of directors:

"First, that a School of Veterinary Medicine be and is hereby established as a part of the Agricultural and Mechanical College and located at College Station.

"Second, that Dr. Mark Francis is hereby appointed dean and professor of veterinary medicine and surgery.

"Third, that the president of the college is hereby authorized to name and establish the new departments in the School of Veterinary Medicine and to recommend to the board qualified men to fill the positions.

"Fourth, that the faculty is hereby authorized to prepare and to announce a course of study leading to the degree of doctor of veterinary medicine, the same to conform to the requirements of the Bureau of Animal Industry of the United States Department of Agriculture."

The contract for the veterinary building has not been let, but the plans and specifications have been made and it is hoped the contract can be let in time to have the building completed by the opening of the session of 1917-18. However, the course of study was announced in the catalogue of the college for 1916-17, and the first year of a four-year course leading to the degree of doctor of veterinary medicine is being given during the current year.

#### SUMMER SCHOOL.

Several efforts have been made in the past to have a summer school at the college, but the efforts of the faculty have not been altogether satisfactory and for several years a summer session was abandoned altogether. After careful consideration the faculty decided to announce a summer school for 1916 with the emphasis on agricultural and rural life problems. The board of directors gave its hearty indorsement to the plan and a six weeks summer school was formally announced. Dr. J. O. Morgan was appointed director and his report of the work is made a part of the biennial report of the college. While the attendance was not large, considering the lateness of the announcement the college authorities feel encouraged to believe that the summer school has great possibilities of usefulness as an integral part of the college work. The faculty has planned to extend the scope of the summer school by offering additional courses with college credit for such courses as may be satisfactorily completed. Under the new plan a student may do the equivalent of one year's work by completing a certain number of courses offered in four successive summer sessions. It is anticipated that this plan will encourage many earnest students with advanced credits to come to the college for additional study along agricultural and engineering lines. It is also anticipated that a number of students will avail them-



selves of the opportunity to do summer work in order to shorten the residence period required for graduation.

#### DEPARTMENT OF AGRICULTURAL EDUCATION.

In this connection I wish to direct the attention of the board to the important problem of training teachers of agriculture in connection with high schools and colleges of the State. The rapid extension of agricultural instruction in the secondary schools is one of the obvious educational tendencies of the times. The agricultural college cannot escape its responsibilities for the training of teachers for this work. The only place a teacher can secure both adequate training and enthusiasm for agricultural instruction is in those schools where agriculture is one of the chief aims of instruction. Therefore, it seems important for this college to give larger emphasis to the work of training teachers for instruction in agriculture. A department of agricultural education was organized at the college several years ago and it is at present rendering efficient service to the cause of agricultural instruction, but I am impressed with the fact that the Legislature should give larger recognition to the department as an agency for training teachers. I cannot believe that agriculture will ever be efficiently taught in Texas until the work of training teachers in this college receives due recognition for the work it has undertaken.

#### JUNIOR COLLEGES.

The liveliest educational question at the present time in Texas is that of additional educational agencies for agricultural instruction. The diversity of soil and climate resulting from the large area of Texas has given significance to the diversity of agricultural and livestock production. The Democratic platform adopted at Houston on August 8, 1916, included a plank favoring the establishment of a "branch" agricultural and mechanical college west of the ninety-eighth meridian. The friends of agricultural education should heartily indorse the sentiment that made this platform demand possible. The critical question, however, that has now resulted in differences of opinion is the scope of the curriculum and activities of the institution that is proposed to be established. There seems to be three opinions that are being held by the friends of the movement.

1. Some contend that the institution should be technically designated as a "branch" of the Agricultural and Mechanical College, but they would give the institution the scope of a university, by providing four-year courses in agriculture, in the various branches of engineering, and home economics, and education. In other words this proposed institution would be expected to duplicate the functions of the Agricultural and Mechanical College, the College of Industrial Arts and the State Normal Schools.

2. Others contend that this institution should be restricted to work in agriculture and animal husbandry to meet specific needs of the section that it is called upon to serve. They contend that the mechanic arts should have no place in the curriculum of this institu-

tion as this branch of education can be taught as well one place as another. Besides engineering courses are now being offered at both the University of Texas and the Agricultural and Mechanical College and this apparently provides all the facilities that are necessary for this type of instruction.

3. There are still others who believe that this branch institution should rank as a junior college. That is, a college doing the last two years of high school work and two years (Freshman and Sophomore) of college work. It should be stated in this connection that there are many thoughtful men who favor one or the other of the plans indicated above *who do not believe that this is the time to establish additional schools*. These people contend that we should first thoroughly equip the State institutions already established before burdening the State by creating other schools. The opinion is expressed that it is better to have a smaller number of well equipped, efficient institutions, than a larger number of poorly equipped, inefficient schools.

I venture to express the opinion that the junior college plan is the correct one from the standpoint of sound educational policy and administrative principles. I think ultimately there should be four of these institutions located in the four characteristic sections of the State. I believe, however, that in conformity to the platform demands of the Democratic Party one institution should be established as an experiment. Should it prove successful, the others should be established one, say during each legislative biennium, until four have been established. I think the first of these institutions should be located west of the ninety-eighth meridian and north of the thirtieth parallel. The institution should be under the control and direction of the board of directors of the Agricultural and Mechanical College, but the Legislature should provide for its maintenance by a separate appropriation.

I cannot believe the Legislature of Texas will pass, and the Governor approve, a co-ordinate agricultural and mechanical college in this State. Such a procedure would be nothing short of a calamity to the cause of higher education in Texas. Such a step would create endless rivalry between the two institutions that would intensify sectional feeling in the State and engender intense feeling between the partisan friends of the present institution and the institution that is proposed to be established. For the reasons stated, therefore, I am convinced that the junior college plan represents the wiser course to pursue in an effort to provide additional educational facilities in the interest of the cause of agricultural education.

#### IV.

#### NEEDS OF THE COLLEGE.

The preparation of a budget presents one of the most serious responsibilities that confronts the governing authorities of a state educational institution. Honesty demands that every department of the college should be operated as economically as possible consistent with efficiency and thoroughness of work, but in no sphere of social endeavor is wastefulness more apparent than in an institution of learning where the departments are poorly financed, for the inevitable is inadequate equipment and inefficient instruction. As paradoxical as

it may seem, short-sighted economy is the grossest form of waste when practiced in an educational institution.

It is frankly to be admitted that it is difficult to determine with accuracy the financial needs of the various departments of a college with the variety of activities of that of the Agricultural and Mechanical College. It is impossible to apply the principles of manufacture and commercial finance to an institution of learning. The factory can measure with accuracy its output and determine with precision its profits or losses. An educational institution is dealing with human values that cannot be measured with a yard stick, or estimated in dollars and cents. The emphasis of a factory is always on profits. The emphasis of an educational institution is always on character, citizenship and individual efficiency. The factory knows with certainty the quality of its product. An educational institution cannot determine the quality of its product with certainty, because the material that it receives from the home and public school presents innumerable differences in disposition, preparation, aptitude and tendencies.

But all thoughtful men will agree that education in Texas, as well as elsewhere, has more than justified its cost, both in financial value and human effort. A study of the productive endeavors and the civic ideals of the thousands of students who have gone out from the Agricultural and Mechanical College more than justifies every dollar that has been invested in the college. But fortunately there is a more tangible way to measure the investment at the college. This institution is concerned with productive endeavors. A study of the contribution of the various departments of the college to agricultural development and the livestock interests of the State will show that the institution has not only assisted in conserving our natural resources, but it has assisted in multiplying many fold the production of the State.

#### SUMMARY OF THE FINANCIAL NEEDS FOR THE NEXT BIENNium.

After a thorough investigation of the financial needs of the college for the years ending August 31, 1918, and August 31, 1919, the following summary represents the matured judgment of the officers of the college as the needs of the institution for the next two years.

	For the years ending	
	August 31, 1918	August 31, 1919
I. Salaries, including officers, instructors and other employes.....	\$205,000	\$220,000
II. Administration .....	3,250	3,250
III. Departmental maintenance .....	102,195	90,311
IV. Miscellaneous departments.....	225,160	255,135
V. Permanent improvements.....	520,150	282,500
Total for maintenance and support.....	\$535,605	\$571,846
Total for permanent improvements.....	\$520,150	\$282,500



## PRESENT SALARIES INADEQUATE.

The total for salaries of officers, instructors and employes indicated above represent an increase of \$40,000 for the first year and \$15,000 for the second year. This increased sum is made necessary for two reasons: (1) In the first place, a number of additional instructors will be absolutely necessary to provide an adequate teaching force for the rapid increase in attendance. Your attention is directed to the report of the dean of the college, which shows that the attendance is increasing at approximately 250 students per annum. There is every indication that if accommodations are provided the rate of increase will be much more rapid during the next two or three years. (2) In the second place it seems imperative that the present salary schedule of officers and instructors now identified with the college be increased. There are three very obvious reasons why the present salary schedule should be raised: (a) The college is constantly losing many of its best men because institutions in other sections of the country offer better salaries. The result of this is that the college authorities are compelled to replace these men with young and inexperienced teachers. It will never be possible to make the standards of the college what they ought to be until sufficient salaries can be provided to hold a large number of the efficient men at the college. (b) The high cost of living about which we are hearing so much is another obvious reason why the salaries should be raised at the college. Men employed in the college teaching are required to maintain a comparatively high standard of living, but with the present prices prevailing it either means that salaried men must lower the standard of living, or seek other callings. (c) In addition to these reasons I wish to call your attention to the fact that most of the men employed at this college are on a twelve months basis. You are doubtless aware that in most institutions instructors are required to work only nine months of the year. This leaves three months of free time in which a man may secure employment in a summer school, or some other line of work and thereby supplement his regular salary. In view of the fact that our salary schedule is longer than most other state institutions where nine months time is the basis of employment, it seems obvious that our salary schedule should be adjusted and recognition given to the longer period of service required here.

## ADMINISTRATION.

Little need be said with reference to the amount required for college administration. In the first place the total is comparatively small when the extent of the services is considered. The total represents a slight increase over the present biennium, which is caused by the growth of the college and the multiplication of departments.

## DEPARTMENTAL NEEDS.

The total for the maintenance of the twenty-six departments of the college is conservative, and to reduce the amount of the estimate for



a single department would result in decreasing the efficiency of the institution. Although the attendance is constantly increasing a comparison of the estimate for each department will show that very few departments have asked for an increase for maintenance during the next biennium. Unfortunately the Thirty-fourth Legislature failed to provide any maintenance for the departments of Agricultural Education, Agricultural Engineering, Economics, English, Forestry, History, Mathematics and Poultry Husbandry. Obviously no department can be maintained without funds. The Board was compelled to appropriate funds for these departments out of the available funds of other departments. This was a hardship on the departments for which funds had been provided, as the estimates were very close and every dollar was needed.

A substantial increase has been requested in this budget for the Department of Animal Husbandry. This is a very expensive department of the college, as good types of animals are expensive and the prevailing price of feed is such as to require a considerable amount to keep the live stock in satisfactory condition.

#### NEEDS OF MISCELLANEOUS DEPARTMENTS.

It seems unnecessary to discuss in detail the needs of the nineteen miscellaneous departments, as a separate bulletin will be submitted to the Legislature analyzing and itemizing the various needs classified under this head. I, therefore, direct your attention to only a few items classified under this head.

#### EXTENSION SERVICE.

The budget includes \$95,920 for the first year and \$125,895 for the second year for the extension service of the college. These are the amounts necessary for the Legislature to appropriate to offset the appropriation of the Federal Government. As the Legislature by formal resolution has accepted the terms of the National Extension Act, there seems to be no doubt that the State Government will carry out this contract with the Federal Government and appropriate the amounts required by Federal law.

#### RURAL LIFE SCHOOL AND SHORT COURSES.

An appropriation of \$5,000 each year is included for the maintenance and support of the summer school. As indicated in a previous connection a summer school has become an integral part of the work of the college. It has been organized to include the following:

- A Rural Life School,
- A Summer Normal Institute,
- A School of Cotton Classing,
- A College Division.

The Farmers' Short Course in connection with the Texas Farmers Congress is also a part of the summer school work. The State Democratic convention on two successive occasions has gone on record in

favor of legislative appropriation for a summer school at State supported institutions. The appropriation included here for this purpose is in line with public policy with reference to this type of service.

#### EXHIBITS AND DEMONSTRATIONS.

Your attention is directed to an appropriation of \$2,000 for each year for exhibits and demonstrations. This is really a type of extension work and apparently funds for this purpose should be provided in connection with the extension service of the college, but the chief of the States Relation Service of the United States Department of Agriculture, who is responsible for the administration of the National Extension Act, holds that under the law Smith-Lever funds cannot be used for this purpose, and he holds further that the State funds appropriated to duplicate the Federal appropriation becomes one fund, therefore, it is impossible to use our State funds that are appropriated in conformity to the Extension Act for exhibits and demonstrations. The college is constantly being requested to supply various kinds of exhibits and to send experts to judge livestock and farm products at county fairs. It is believed that the college should encourage these fairs in every possible way, but in order to do so a small fund is necessary for the purpose. For that reason a separate appropriation has been included in this budget for this purpose.

#### GRADUATE SCHOLARSHIPS.

Another imperative need, not previously included in the budget, is that of twenty graduate scholarships. Practically all the better class colleges and universities provide fellowships to pursue graduate work along research lines. At the present time there is a great need, as well as a great demand, for men qualified to do research work in agriculture and engineering. The college is encouraging graduates of agricultural colleges to come to this institution for one or two years advance work and this appropriation would prove a great stimulus and enable the college to select young men of promise for graduate instruction.

#### STUDENT LABOR.

Your attention is also directed to the request for \$12,000 each year for student labor. This is an increase of \$2,000 each year. There are now more than three hundred students on the student labor roll and the number increases each year. These young men have certified that they are unable to defray their actual expenses in college and that circumstances at home make it impossible for their parents to do so. These young men are doing various kinds of work on the campus, such as janitor service, firing boilers, milking, working on the farm, assisting in laboratories and various other kinds of work. The average amount that each student is allowed to earn is \$15 to \$20 per month. To cut off this fund would be to deny many students the opportunity of an education.

In this connection I wish to call your attention to the need of a

student loan fund. Many institutions have provided for such a fund and it is imperatively needed here. It is not expected that the Legislature will appropriate money for this purpose, but the alumni and friends of the college should start a movement with this object in view. It is obvious that the student who earns a large part of his expenses by doing student labor is reducing very materially the amount of time that he has to devote to his studies. A student loan fund would solve this problem in the interest of higher scholarship and better preparation for vocational life.

## V.

### PERMANENT IMPROVEMENTS

The building needs of an institution may be classified as imperative, or those that must be provided in order to maintain efficiency, and those that are desirable for larger service but not immediately pressing.

I have taken the liberty, therefore, after careful analysis of our present situation and conferences with the deans of the college, to submit a building program covering a ten-year period. It is my judgment that the program is reasonable and under normal conditions the attendance will justify a legislative expenditure within this period of the sum necessary to provide every building item included herein.

As a part of this building program you are requested to urge the Thirty-fifth Legislature to provide the following buildings to meet the imperative and immediate needs of the college if it is to serve the State efficiently.

#### AGRICULTURAL BUILDING.

In the thirty-ninth biennial report which I submitted to you two years ago I called your attention to the need of an agricultural building. The reasons then presented are not only pertinent today but even more obvious. The number of students enrolled in the School of Agriculture is now 628, or 53 per cent of the entire student body. The agricultural building now in use at the college was built many years ago at a cost of \$28,000. Agricultural classes are now using space in nearly every building on the campus. This means that they are compelled to recite in rooms poorly adapted to the purpose and removed from laboratories where they could do their best work. It is interesting to recall that the president of the college in his report to the board of directors in 1911 recommended that an agricultural building was imperatively needed and the board included this item in its budget to the Legislature. The First Called Session of the Thirty-third Legislature made an appropriation for this purpose, but the item was vetoed by the Governor. I respectfully urge that every possible effort be made to secure an adequate appropriation by the Thirty-fifth Legislature for a building of sufficient size to meet the present and future needs of the college.



## MECHANICAL ENGINEERING BUILDING AND SHOPS.

I recommend that \$20,000 be requested for mechanical shops for 1917-18 and \$75,000 be sought for a mechanical engineering building for 1918-19. This building is one of the imperative needs of the college at the present time. Mechanic art is fundamental to an efficient college of agriculture and engineering. Practically all the students of the college are required to take one or more courses in this department. It is surprising that no attention has been given to this very essential department. I recommended to the board of directors that this building be included in the budget which was submitted to the Thirty-fourth Legislature and you adopted my recommendation, but unfortunately the Legislature did not provide an appropriation for this purpose, but we cannot longer delay this building and equipment without a serious handicap to the college, and I, therefore, include this item as one of the needs of the college that should be met by the Thirty-fifth Legislature.

## PHYSICS BUILDING.

Your attention is called to the fact that the department of physics is now housed in the civil engineering building. Practically all the first floor and basement of this building is now assigned to the physics department, but with the rapid growth of the college it is easy to realize that the civil engineering department needs all the space in its present building, besides the civil engineering building is not well adapted, and it was not designed, for physical laboratories. A physics building involves problems of special construction and arrangements peculiar to itself. The Legislature many years ago provided a building for the department of chemistry, and it seems very important for the reasons stated to provide immediately a building for the department of physics.

## DORMITORY NEEDS.

The location of the college makes it necessary to house all students in dormitories, as there are no boarding houses accessible. This means that the Legislature must provide ample dormitory space for all students who desire to enter the college, or adopt a policy of limiting the college enrollment. The present state of mind with reference to the importance of education makes the latter alternative unthinkable. For that reason I am compelled to ask you to urge the Legislature to greatly increase the dormitory accommodations at the College. At the present we have accommodations for 1024 students. To date we have enrolled 1196. This means that we are compelled to place three students in a room and as the rooms are very small, this is not only detrimental to health, but it is reacting upon the scholarship of the students in these crowded quarters. In view of this condition it seems necessary to provide, out of the available revenues for this year, a dormitory immediately in order to accommodate the students who will enroll next September. I suggest a dormitory of the type of Mitch-



ell Hall, which cost \$75,000.00 several years ago. I estimate that \$90,000.00 will be required at the present time to erect a similar building and I recommend that in addition to the dormitory request for the current year, that one each be asked for the next biennium.

#### COTTAGES.

In connection with the dormitory problem for students I wish to direct your attention to the housing problem of the officers and professors of the College. It has been the policy of the Legislature to provide from time to time a number of cottages to be assigned to those identified with the college. There is absolutely no place for anyone to live convenient to the College except on College property. You have wisely refused to allow private individuals to erect houses on State property, and, therefore, the only alternative is for the State to supply living accommodations for those employed at the College. Bryan is five miles away and while there is interurban service between the College and Bryan, it is obviously very inconvenient for many of those employed at the College to live in Bryan. It should be made clear to all the increase in the number of employes has outstripped provisions for their accommodation. This condition has resulted in serious dissatisfaction and a number of the most promising men connected with the institution have refused to undergo the inconvenience and resigned their positions. This presents in many respects the most complicated and difficult problem connected with the College.

I might explain that in the early years of the College the house rent was made a part of the salary of those employed at the institution. About four years ago you very wisely adopted the policy of requiring those employed after that date to pay house rent and the income from this source has been used to keep up the residences. This seems to be sound policy, but the Legislature should be asked to appropriate money for this purpose, for the amount derived from this source thus far has been inadequate. It would be far better, in my judgment, to put all residences on a rental basis and increase the salaries by a sufficient sum to offset the rental now made a part of the salary of professors. This would insure a sufficient income to keep all the houses on the campus in reasonable repair.

In view of the conditions stated I suggest that \$16,000.00 each year be requested for additional cottages. I cannot believe that anyone familiar with conditions would doubt that every dollar of this sum is greatly needed.

#### POULTRY HUSBANDRY BUILDINGS.

In 1913 the Board established a department of Poultry Husbandry and courses are now in successful operation. Poultry has become one of the most important industries of the State, its magnitude in the aggregate being almost beyond comprehension. Two years ago the Legislature was requested to appropriate \$5,000.00 each year for the buildings necessary for this department, but the item failed of pas-

sage. I respectfully urge that the request be renewed, as it is meritorious and deserves more careful consideration.

Without presenting at this time the reasons for the items listed below I wish to submit for your consideration an outline of the building program that ought to appeal to every friend of education. It represents the deliberate study of several of the most efficient officers and professors of the College and should it be realized, 1926 will see the Agricultural and Mechanical College one of the best equipped and most efficient institutions of its kind in the entire country.

### A TEN-YEAR BUILDING PROGRAM.

#### FROM THE THIRTY-FIFTH LEGISLATURE.

	1917-18	1918-19
Agricultural Building and Equipment.....	\$350,000	
Dormitories and Equipment (one each year) ..	90,000	90,000
Cottages .....	20,000	20,000
Mechanical Engineering Building and Shops..	20,000	75,000
Physics Building, including Equipment.....		60,000
To remodel old chapel for library purposes and and to provide library equipment for the same .....	10,150	5,000
Extension of sewer system, water mains and tunnels .....	10,000	5,000
Central gas plant, including pipe and fittings..	15,000	
Poultry Husbandry Buildings.....	5,000	5,000

#### FROM THE THIRTY-SIXTH LEGISLATURE.

	1919-20	1920-21
Gymnasium and Armory.....	\$200,000	
Library .....		150,000
Completion of the Dining Hall.....	60,000	
Agricultural Engineering Building.....		75,000
Dormitories .....	90,000	90,000

#### FROM THE THIRTY-SEVENTH LEGISLATURE.

	1921-22	1922-23
Extension Building.....	\$ 75,000	
Chemical Building.....		100,000
Dairy Building.....	75,000	
Dormitories .....	90,000	90,000
Machine Shops.....	20,000	
Wood Shop.....		15,000
Foundry .....		15,000

## FROM THE THIRTY-EIGHTH LEGISLATURE.

	1923-24	1924-25
Biology Building.....	\$ 75,000	
Electrical Engineering Testing Laboratory....		75,000
Architectural Engineering Building.....	75,000	
Dormitories .....	90,000	90,000

## FROM THE THIRTY-NINTH LEGISLATURE.

	1925-26	1926-27
Railway Mechanical Engineering Building....	\$ 75,000	
Ceramics Building.....		50,000
Hydraulic Laboratory .....	45,000	
Dormitories .....	90,000	90,000

## A BUILDING POLICY.

There is implied in this building program the policy of the governing authorities of the College with reference to construction. It is believed that departmental buildings carefully designed with reference to the purposes they are called upon to serve is wiser than to attempt to erect larger buildings for housing several unrelated departments in which it is impossible to adapt them to the peculiar needs for which they are erected. It is the endeavor here to give distinctiveness to the buildings and to avoid giving them the appearance of a large factory or manufacturing plant. In this connection your attention is directed to the campus plan which is designed to serve the needs of the College for all future time. This plan was adopted by the Board in September 1915 and future buildings and land-scape designs will follow in detail the plan of the architect as approved by you.

## CONCLUSION.

In conclusion I wish to acknowledge my indebtedness to the Board of Directors, the Deans and other officers of the College, and to the entire teaching staff for co-operation and valuable assistance rendered in their respective capacities during the past two years. *The work of building a great college is not the result of one man's endeavors, but the united assistance and co-operation of many men working in their respective spheres for a single purpose.*

I gladly acknowledge the contribution that has been made and is being made by each and every man who has contributed to the development of this institution. If this institution is to serve the people of Texas in a larger way each of us must do his assigned task with capability and energetic devotion. I am glad to give expression to the fact that this has characterized all of those in any way identified with the college during the two years that is now closing.

Respectfully submitted,

W. B. BIZZELL,  
President.







